

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, whereby the Participant's answers will be documented by a party other than the Participant. This must be acknowledged in writing (e.g. FT001 and Assessor Comments)
- 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.
- Assessors are to complete marking in pen of a different colour to the Participant.
- 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

HARON BIAT

Participant signature

[Signature]

Date

Click here to enter a date. *01/02/20*

Assessor name

Assessor signature

Date

Click here to enter a date.

Number of questions	Number of questions answered correctly	Task outcome (Tick)	
38		Satisfactory	Not Yet Satisfactory
		☐	☐

ASSESSOR COMMENTS

- Q1. **A Performance Solution must abide by which of the following?**
Tick all that apply.

Answer

Choice	Possible Answers
☒	Be assessed according to one or more of the Assessment Methods
☒	Go beyond the requirements of Deemed-to-Satisfy Provisions
☒	Comply with the Performance Requirements



- Q2. **True or False (Tick your response): The Performance Requirements of the National Construction Code can be achieved by using a Performance Solution, a Deemed-to-Satisfy Solution, or a combination of both.**

Answer

☒	True
☐	False



- Q3. **True or False (Tick your response): The term 'Performance Solution' in the NCC was formerly known as 'Alternative Solution'.**

Answer

☒	True
☐	False



- Q4. **Where a Performance Solution has been proposed, which of the following documentation should be prepared and retained?**
Tick all that apply.

Answer

Choice	Possible Answers
☒	Details of the relevant Performance Requirements
☒	Assessment Methods used to establish compliance with the relevant Performance requirements
☒	Details of any Expert Judgement relied upon
☒	Details of any tests or calculations used to determine compliance with the Performance Requirements
☒	Details of any Standards or other information which were relied upon



Q5. **True or False (Tick your response): Where a Deemed-to-Satisfy solution has been proposed, all relevant plans/specifications should be retained.**

Answer

☒	True
☐	False



Q6. **Identify the Volume and Parts of the NCC that outline the Assessment Methods used to determine whether a Performance Solution or a Deemed-to-Satisfy Solution complies with the Performance Requirements for Classes 1 and 10, and Classes 2 to 9.**

Answer

Classes 1 and 10	Classes 2 to 9
Volume 2 Part 1.0.9	Volume 1 Part A0.8



Q7. **Identify the Australian Standard that relates to artificial lighting needed for safe movement, as noted in the NCC.**

Answer AS/NZ3000



Q8. **Identify the Volume and Parts of the NCC that outline the requirements for artificial lighting needed for safe movement for Classes 1 and 10, and Classes 2 to 9.**

Answer

Classes 1 and 10	Classes 2 to 9
Volume Two, Part 3.12.1	Volume One, Part J1



Q9. Fill in the blanks for the statement below, referring to Volume 1 of the NCC with regards to lighting:

Where a Deemed-to-Satisfy Solution is proposed, Performance Requirements

BP1.1 to BP1.4 are satisfied by complying with

- (i) B1.1 to B1.6; and
- (ii) For a building containing an occupiable outdoor area, Part H1; and
- (iii) for farm buildings and farm sheds, DP7.

Where a Performance Solution is proposed, the relevant Performance Requirements must be determined in accordance with A2.2(3) and S2.4z(3) as applicable.

Answer



Q10. Fill in the blanks for the statement below, referring to Volume 2 of the NCC with regards to light:

Where an alternative light system is proposed as a Performance Requirement to that described in Part 3.8.4, that proposal must comply with –

- (a) Performance Requirement P2.4; and
- (b) the relevant Performance Requirements determined in accordance with 1.0.7 and 1.1.5 as applicable.

Answer



Q11. Identify the Australian Standard that relates to each of the listed types of fire fighting equipment, as noted in the NCC.

Answer

Equipment	Australian Standard
Fire hydrants	AS2419.
Fire hose reels	AS2441
Portable fire extinguishers	AS2444
Smoke alarms	AS3786



Q12. For each of the listed types of fire fighting equipment, identify whether they are required by the NCC (if so, identify the relevant Part).

Answer

Equipment	Volume 1	Volume 2
Fire hydrants	Part E1.3	
Fire hose reels	Part E1.4	
Portable fire extinguishers	Part E1.6	
Smoke alarms	Part E2.2a	3.7.5.2, 3.7.5.6



Q13. Identify the applicable Act in your jurisdiction that outlines the requirements for smoke alarm installation in domestic dwellings. Briefly identify the requirements.

Answer

Act name and section(s)	Requirements
AS3786:2014	From 1 January 2017 When replacing smoke alarms, they must be of a photoelectric type which complies with Australian Standard (AS) 3786-2014. Replacing smoke alarms Existing smoke alarms manufactured more than ten years ago must be replaced. (Note: Smoke alarms should have the date of manufacture stamped on them.) Smoke alarms that do not operate when tested must be replaced immediately. Existing hardwired smoke alarms that need replacement must be replaced with a hardwired smoke alarm From 1 January 2027 Smoke alarms in all dwellings must: i) be photoelectric (AS 3786-2014); and ii) not also contain an ionisation sensor; and iii) be less than 10 years old; and iv) operate when tested; and v) be interconnected with every other smoke alarm in the dwelling so all activate together. Smoke alarms must be installed on each storey: i) in each bedroom; and ii) in hallways which connect bedrooms and the rest of the dwelling; or iii) if there is no hallway, between the bedrooms and other parts of the storey; and iv) if there are no bedrooms on a storey at least one smoke alarm must be installed in the most likely path of travel to exit the dwelling. Smoke alarms must be either hardwired or powered by a nonremovable 10-year battery.



Q14. Identify the applicable Act in your jurisdiction that outlines the requirements for testing smoke alarms in domestic dwellings. Briefly identify the requirements.

Answer

Act name and section(s)	Requirements
Emergency Services Act 1990 (QLD) Division 5A – 104RD	Within 30 days before the start of a tenancy in a domestic dwelling, the lessor must test each smoke alarm in the dwelling in compliance with section 104RAA(3). Maximum penalty—5 penalty units. (2) During a tenancy in a domestic dwelling, the tenant must test each smoke alarm in the dwelling, in compliance with section 104RAA(3), at least once every 12 months.



Q15. Identify the applicable Act in your jurisdiction that outlines what must occur if smoke alarm in a domestic dwelling does not operate upon testing and when any rectification must occur. Briefly identify the requirements.

Answer

Act name and section(s)	Requirements
Building Fire Safety (Domestic Smoke Alarms) Legislation Amendment Regulation 2016 Section 13	From 1 January 2017 for all existing dwellings... • If the smoke alarms are older than 10-years or if they fail to operate when tested they must be replaced. • If they are replaced they must be replaced with photoelectric smoke alarms and powered by what is currently there (i.e. if they are powered by 240-volt they must be replaced with 240-volt smoke detectors, otherwise battery operated photoelectric are fine). • All smoke alarms that are required by legislation, when necessary, must be replaced with Australian Standard 3786–2014 compliant smoke alarms.



Q16. In observation of NCC Volume 2, identify three (3) aspects which should be checked with regards to smoke alarms.

Answer

Smoke alarms must— (a) be located in— (i) Class 1a buildings in accordance with 3.7.2.3; and (ii) Class 1b buildings in accordance with 3.7.2.4 and 3.7.2.5; and (b) comply with AS 3786, except that in a Class 10a private garage where the use of the area is likely to result in smoke alarms causing spurious signals, any other alarm deemed suitable in accordance with AS 1670.1 may be installed provided that smoke alarms complying AS 3786 are installed elsewhere in the Class 1 building; and (c) be connected to the consumer mains power where consumer power is supplied to the building; and (d) be interconnected where there is more than one alarm



**Q17. Must all smoke alarms be interconnected in domestic dwellings?
Explain your response with reference to legislation.**

Answer Must be interconnected where there is more than one alarm



Q18. Fill in the blanks for the definition of fire compartments, referring to Volume 1 of the NCC:

Fire compartment means –

(a) The total space of a building; or

(b) When referred to in –

- (i) The Performance Requirements – any part of a building separated from the remainder by barriers to fire such as walls and/or floors having an appropriate resistance to the spread of fire with any openings adequately protected; or
- (ii) The Deemed-to-Satisfy Provisions – any part of a building separated from the remainder by walls and/or floors each having an FRL not less than that required for a fire wall for that type of construction and where all openings in the separating construction are protected in accordance with the DtS Provisions of the relevant Part.

Answer



Q19. Identify the Volume and Parts of the NCC that outline the requirements for fire compartmentation and separation for Classes 1 and 10, and Classes 2 to 9.

Answer

Classes 1 and 10	Classes 2 to 9
3.7.1	Part C2



Q20. Fill in the blanks for the statement below, referring to Volume 1 of the NCC with regards to fire compartmentation and separation:

Where a Deemed-to-Satisfy Solution is proposed, Performance Requirements

DP1 to DP6,D are satisfied by complying with

- (i) D1.1 to D1.16, D2.21 to D2.25
and D3.1 to D3.12; and
- (ii) in a building containing an atrium, Part G3; and
- (iii) for additional requirements for Class 9b buildings, Part H1; and
- (iv) for farm sheds, Part H3.

Where a Performance Solution is proposed, the relevant Performance Requirements must be determined in accordance with A2.2(3) and A2.4(3) as applicable.

Answer



Q21. Fill in the blanks for the statement below, referring to Volume 2 of the NCC with regards to fire separation:

Where an alternative fire separation design is proposed as a Performance Solution to that described in Part 3.7.2 that proposal must comply with Performance Requirement P2.3.; and the relevant Performance Requirements determined in accordance with A2.2(3) and A2.4(3) as applicable.

Answer



Q22. Identify the Australian Standard referenced in NCC Volume 1 with regards to compartmentation and separation for electricity supply systems.

Answer



Q23. Identify the Volume and Parts of the NCC that outline the level of fire resistance required for Classes 1 and 10, and Classes 2 to 9.

Answer

Classes 1 and 10	Classes 2 to 9
Part 3.7	Section C



Q24. In a building's specifications, an FRL is stated as being 90 / 60 / -. If exposed to a standard fire test, how many minutes can you expect this building element to last for the criteria listed below?

Answer

Minutes	Criteria
30	Insulation
60	Integrity
90	Structural adequacy



Q25. Fill in the blanks:

According to NCC Volume 1, an electricity substation located within a building must be separated from any other part of the building by construction having an FRL of no less than $\frac{12}{0} / \frac{12}{0} / \frac{120}{0}$ and have any doorway in that construction protected with a self-closing fire door having an FRL of not less than $\frac{0}{0} / \frac{1}{0} / \frac{30}{0}$.

Answer



Q26. Fill in the blanks: According to NCC Volume 2, if an electrical wire or cable penetrates a separating wall, the service and building element at the penetration must be identical with a prototype assembly which has been tested and achieve an FRL of not less than $\frac{0}{0} / \frac{60}{0} / \frac{60}{0}$.

Answer



Q27. Identify the applicable Act in your jurisdiction that outlines the occupier's requirements for maintaining prescribed fire safety installations (e.g. fire doors). Briefly identify the requirements.

Answer

Act name and section(s)	Requirements
Building Act 1975 and the Building Fire Safety Regulation 2008	AS 1851–2005 for prescribed fire safety installations other than passive fire safety installations, fire blankets and emergency lighting ♣ Schedule 1 of MP 6.1 for fire-doors, smoke doors and fire shutters ♣ AS/NZS 2293.2–1995 Emergency evacuation lighting for buildings—Inspection and maintenance for emergency lighting ♣ an alternative solution that specifies maintenance requirements which are inconsistent with the above standards. ♣ If a building was constructed before 12 September 2005, the building occupier has the following options to comply with the code: ♣ comply with the maintenance requirements of AS 1851—2005 and schedule 1 of the QDC ♣ comply with the maintenance requirements of a relevant Australia Standard which was applicable on the day the building was approved ♣ where there was no Australian Standard for maintenance at the time of building approval, then recommendations from an appropriately qualified person to carry out maintenance must be followed.



Q28. Identify the applicable Regulation in your jurisdiction that outlines the timeframes in which repair or corrective action must be taken when maintaining prescribed fire safety installations. Briefly identify the requirements.

Answer

Regulation name and section(s)	Requirements
Building Fire Safety Regulation 2008 division 53	The occupier of the building must ensure the repair is carried out or the corrective action is taken no later than 1 month after the maintenance of the installation was carried out, unless the occupier has a reasonable excuse.



Q29. NCC Volume 1 outlines that fire doors must be fitted with smoke seals and the assembly must be tested in accordance with Australian Standards. To which classes of building does this specification apply?

Answer 1 - 10



Q30. Do all fire doors require tags? Explain your response with reference to legislation.

Answer Buildings approved after 1 April 1976 under the Building Act 1975 all require tags to be fitted to the fire doors. Fire doors that have been replaced after the 1 April 1976 all require tags to be fitted. Buildings approved before this date are not required to have tags fitted to the fire doors unless required by the local authority at the time of approval



Q31. Match the building classifications and their descriptions by writing the appropriate letter next to each number in the centre column.

Answer	Classification	Answers	Description
	1 Class 1	1 - e	A A non-habitable building or structure.
	2 Class 2	2 - h	B A laboratory or a building in which a handicraft or process for the production, assembling, altering, repairing, packing, finishing or cleaning of goods or produce is carried on for trade, sale or gain.
	3 Class 3	3 - c	C A residential building other than Class 1 or 2 which is a common place of long term transient living for a number of unrelated persons.
	4 Class 4	4 - d	D A dwelling in a building that is Class 5, 6, 7, 8 or 9 if it is the only dwelling in the building.
	5 Class 5	5 - f	E May be a single dwelling or a boarding house, guest house or hostel with a floor area less than 300m ² .
	6 Class 6	6 - g	F An office building used for professional or commercial purposes, excluding buildings of Class 6, 7, 8 or 9.
	7 Class 7	7 - i	G A shop or other building for the sale of goods by retail or the supply of services direct to the public.
	8 Class 8	8 - b	H A building containing 2 or more sole-occupancy units, each being a separate dwelling.
	9 Class 9	9 - j	I A building which is a carpark or for storage/display of goods or produce for sale by wholesale.
	10 Class 10	10 - a	J A building of a public nature.



Q32. What class of building would shops, restaurants and cafes belong to?

Answer Class 6



Q33. What class of building would a general medical practitioner's office belong to?

Answer Class 9



Q34. True or False (Tick your response): At the design stage, it may not be clear who the final tenant will be (or how they will be using their tenancy), so as long as the design meets the minimum requirements of all the classifications, it could be used for any of the purposes.

Answer

☒	True
☐	False



Q35. Where parts of a building have different purposes, the classification of Class 1 may apply to the whole building if not more than what percentage of the floor area is used for a purpose which is a different classification? Tick your response.

Answer

Choice	Possible Answers
☐	5%
☒	10%
☐	25%
☐	50%



Q36. The NCC aims to ensure structures appropriately withstand normal forces. Match the terms and definitions below by writing the appropriate letter next to each number in the centre column.

Answer

Term	Answers	Definitions
1 Bending	1 - b	A A force which shortens or crushes.
2 Compression	2 - a	B A fore which stretches and squashes at the same time.
3 Shear	3 - f	C A force which tries to pull something apart.
4 Strain	4 - e	D Intensity of the internally distributed forces that resist a change in the form of a body.
5 Stress	5 - d	E Physical change in the dimensions of a structure that results from applying a load.



6	Tension
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 6 - c

F	Created where two opposite forces try to cut, tear or rip something in two.
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Q37. True or False (Tick your response): When a beam is loaded, the top is compressed and the bottom is in tension.

Answer

☒	True
☐	False



Q38. True or False (Tick your response): When a cantilever is loaded, the top surface is in tension and the bottom is in compression.

Answer

☒	True
☐	False



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

PRACTICAL ASSESSMENT INSTRUCTIONS

- The following practical assessment will require the Participant to complete work related activities.
- The Assessor will conduct observations of the Participant's work to determine whether they display sufficient practical skills and knowledge.
- Please fill in the details below – providing your name, signature and date of assessment.
 - The Participant's signature acknowledges that the Assessor provided clear instructions and the Participant understood what was required to complete this assessment.
- The Assessor may substitute a Practical Task with an alternate task of equal value.
 - Alternate tasks must be fully documented by the assessor in the Assessor Comments area.

Participant name _____

Participant signature _____

Date [Click here to enter a date.](#)

Assessor name _____

Assessor signature _____

Date [Click here to enter a date.](#)

Task	Task outcome (Tick)	
	Satisfactory	Not Yet Satisfactory
Task 1 (Occasion 1)	☐	☐
Task 1 (Occasion 2)	☐	☐

ASSESSOR COMMENTS

CPCCBC4001A

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

Practical Task 1 (2X)

Description of task:

On two (2) occasions, a suitable observer is to verify the participant's ability to access, interpret and apply relevant building codes and standards.

- Occasion 1: Construction classified as Class 1 and 10 construction
- Occasion 2: Construction classified in Classes 2 to 9 with a gross floor area not exceeding 2000 square metres, not including Type A or Type B construction

The participant is to gather evidence of how they have completed each component of the Practical Task, which is to be submitted with this Practical Assessment sheet.

Evidence to be submitted may include:

- Documented evidence of determining a compliant solution on a project including:
 - Correspondence such as letters, emails, and records of other communications
 - Certifier reports, instructions
- Other compliance documentation for a project including:
 - Council or private certifier inspection reports
 - Structural inspection certificates
 - Occupation certificates

The observer is to provide detailed comments on the tasks completed by the participant. The assessor is to verify the observer's comments in the Assessor Comments section, and provide the Practical Assessment outcome on the front cover of this document.

Resources required:

Drawings and specifications, National Construction Code, Australian Standards, Relevant legislation.

Assessment of task

Name of participant:	Aaron Birt		
Name of observer:	Karen McNamara		
Role of observer (Confirm suitability to sign)	Contracts Administrator		
Email address of observer	vabrisbane@outlook.com		
Signature of observer:			
Date:	Click here to enter a date. 21/2/20		
When completing the task, did the participant:	Tick if satisfactorily completed. Provide comments if left unticked.		
	1st Occasion	2nd Occasion	
1 Access and interpret codes and standards			
1.A. Identify relevant performance requirements from the National Construction Code that apply to individual projects described as low rise.	☒		☐
1.B. Determine requirements of relevant National Construction Code deemed-to-satisfy (DTS) provisions.	☒		☐

1.C. Access and interpret requirements of relevant Australian standards referenced in the National Construction Code.	☒	☒
2 Classify buildings		
1.2A. Determine the nature of building according to its use and arrangement.	☒	☒
1.2B. Apply National Construction Code criteria to determine the defined classification.	☒	☒
1.2C. Identify and interpret National Construction Code requirements for multiple classification.	☒	☒
3 Solutions for compliance		
1.3A. Determine range of criteria to ensure that construction methods comply with National Construction Code performance requirements.	☒	☒
1.3B. In accordance with company policy and procedures, discuss and propose alternative solutions to a design or construction problem that complied with National Construction Code requirements, considering basic design principles and the behaviour of materials and structures under stress, strain, compression, bending or combined actions.	☒	☐
1.3C. Identify and document performance-based solutions in accordance with National Construction Code requirements.	☒	☐
1.3D. Analyse and apply assessment methods referenced in the National Construction Code to determine whether a building solution complied with performance requirements or DTS provision.	☒	☒
1.3E. Identify and complete relevant documentation in accordance with National Construction Code requirements.	☒	☒
1.3F. Effectively communicate using the following methods: - Language/concepts appropriate to cultural differences - Non-verbal communication	☒	☒
4 Fire protection requirements		
1.4A. Identify and apply passive and active fire control elements for low rise buildings, as required by the National Construction Code and other legislation (including WHS requirements).	☐	☒
1.4B. Determine level of fire resistance required for the construction of various low rise buildings.	☒	☒
1.4C. Check existing buildings for compliance with passive and active fire protection requirements, in accordance with National Construction Code requirements.	☒	☒
The Participant's performance was: ☒ Satisfactory ☐ Not Satisfactory		

OBSERVER COMMENTS

Aaron understands the relevance and requirements of the legislations and Acts.