



Australian Government

CPPBPA5001 Assess factors affecting bushfire behaviour

Release: 1

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Modification History

Release 1	This version first released with CPP Property Services Training Package Release 17.0. New unit of competency.
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Application

This unit specifies the skills and knowledge required to observe, identify, assess and document factors and conditions conducive to potential bushfire impact on development sites.

The unit applies to individuals who are paraprofessional workers and have technical and theoretical knowledge on bushfires. They demonstrate autonomy, judgement and responsibility in a range of contexts within broad but established parameters, they possess communication and analytical skills to determine and transmit solutions to complex problems.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Nil.

Unit Sector

Fire Technology

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

1 Analyse factors that impact bushfire and develop predictions.	1.1	Identify fire behaviour models for different types of vegetation.
	1.2	Analyse factors effecting fire behaviour.
	1.3	Source and review regional fire behaviour information.
	1.4	Acquire and apply fire prediction tools and references used to analyse fire behaviour and spread.

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| | 1.5 | Identify factors for landscape driven bushfire behaviour and relationship to fire prediction tools and models commonly used to assess bushfire risk. |
| 2 | Conduct site assessment and identify local conditions. | |
| | 2.1 | Identify site from planning documents. |
| | 2.2 | Coordinate site visit with stakeholders. |
| | 2.3 | Conduct and record observations for bushfire potential according to current industry standards and workplace procedures. |
| | 2.4 | Identify site-specific health and safety hazards, assess risk and implement controls according to workplace procedures for site visits. |
| | 2.5 | Identify potential consequential fires likely to impact site buildings and assets. |
| | 2.6 | Assess adequacy of emergency vehicle access, water supplies and fire suppression equipment. |
| | 2.7 | Identify factors to be considered in a bushfire survival plan. |
| 3 | Assess site conditions for potential bushfire risk. | |
| | 3.1 | Orient plans/maps and locate key features on site. |
| | 3.2 | Identify typical local seasonal weather conditions and likely impact on potential bushfire risk. |
| | 3.3 | Determine site fuel loads from existing vegetation and site conditions according to industry procedures. |
| | 3.4 | Identify topographic information and consider impact on potential bushfire risk. |
| | 3.5 | Identify potential sources of ignition for bushfire for site. |
| 4 | Assess adjoining property conditions and potential for bushfire risk. | |
| | 4.1 | Locate adjoining properties from maps and determine purpose and function. |
| | 4.2 | Identify adjoining property vegetation cover and type. |
| | 4.3 | Identify topographic information for adjoining properties. |

- 4.4 Identify potential sources of ignition for bushfires on adjoining properties.
 - 4.5 Assess adjoining properties characteristics and conditions for potential contributing factors for bushfire risk.
- 5 Prepare summary report on bushfire risk for site.
 - 5.1 Develop predictions for fire behaviour and spread according to topographical variations and industry standard models.
 - 5.2 Calculate radiant heat flux and flame lengths to determine impact of a bushfire on buildings and assets according to industry standard models.
 - 5.3 Determine bushfire behaviour and potential impact for site.
 - 5.4 Assess identified factors and consider bushfire risk.
 - 5.5 Collate observations for site and adjoining properties.
 - 5.6 Prepare a summary report of likely bushfire risk.

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Unit Mapping Information

No equivalent unit.

Links

Companion volumes to this training package are available at the VETNet website - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=6f3f9672-30e8-4835-b348-205dfcf13d9b>

Assessment Requirements for CPPBPA5001 Assess factors affecting bushfire behaviour

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Performance Evidence

To demonstrate competency, a candidate must meet the elements and performance criteria of this unit by:

Conducting site assessments for at least three (3) sites with different characteristics and analysing factors on each site for potential bushfire risk, including:

- identifying and assessing the characteristics and factors for the site and adjoining property contributing to bushfire risk which must include:
 - vegetation type
 - fuel load and arrangement, including ground, surface, ladder and elevated fuel
 - topography
 - seasonal climatic conditions
- analysing bushfire risk which must include:
 - landscape driven bushfire behaviour
 - impact of variations in topography and length of fire runs
 - radiant heat flux and flame lengths
 - impact of consequential fires
- documenting and reporting on potential bushfire risk.

Knowledge Evidence

To be competent in this unit, a candidate must demonstrate knowledge of:

- fire and the principles of development, including:
 - fuel
 - ignition
 - oxygen
 - waste products
 - principles for extinguishing fire
 - fire progression from ignition to ash
- fire behaviour models, including reviewing the inputs, outputs, limitations and application

- properties of fire, heat and combustion, including:
 - conduction, convection and radiant heat transfer
 - pyrolysis and combustion
- factors affecting fire behaviour, including:
 - common types of fuel and arrangement in rural and peri-urban environments, including ground fuel, surface fuel, ladder fuel, elevated fuel, vegetation and fuel loading
 - topography and the movement of bushfire
 - weather, including temperature, humidity, precipitation, wind and fire-generated microenvironments
- impact of climate on fire behaviour, including:
 - seasonal variations caused by El Nino and other climatic conditions
 - impact of climate change
 - soil dryness index and drought factors
- consequential fires on building-to-building fire spread from ignition of combustible items in the vicinity
- common sources of ignition of buildings and properties bushfires, including:
 - fire-generated embers
 - radiant heat
 - direct flame contact
- basic bushfire behaviour prediction models, including:
 - vegetation-specific models for grasslands, shrublands, dry eucalypt forests, wet eucalypt forests, pine plantations and spinifex grasslands
 - radiant heat models, including view factor models
 - fire intensity and flame length models
- contribution of other combustible materials on fire growth and spread, including:
 - fences
 - woodpiles
 - boats and vehicles
 - outdoor furniture
 - sheds
 - neighbouring buildings
 - other combustible materials.

Assessment Conditions

Assessors must satisfy the requirements for assessors contained in the Standards for Registered Training Organisations.

Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting where these skills and knowledge would be performed.

Candidates must have access to:

- sites specified in the performance evidence
- legislation, regulations, standards and codes of practice relevant to bushfire modelling
- stakeholders.

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