TyreStewardship AUSTRALIA

BEST PRACTICE GUIDELINES FOR TYRE STORAGE AND FIRE AND EMERGENCY PREPAREDNESS

APPENDIX B
CHECKLIST OF ESSENTIAL REQUIREMENTS

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	ASPECT	ESSENTIAL REQUIREMENT	REFERENCE SECTION
☐	Site selection	Site selection for storage of tyres should include consideration of the following; • impermeable soil, or addition of sealed surface • site should be situated away from surface watercourses • where tyres are stored outside, proximity to infrastructure and ensure site is large enough to account for separation distances and allow for future expansion • flat, level ground where possible.	3.1.1
☐	Building design	Tyre storage facilities must comply specifically with Clause E1.10 and E2.3 of Part E, Volume 1 of the NCC.	3.1.1
☐	Security and monitoring	Site security should include full enclosure of the site with fence or wall (non-combustible materials) of adequate height to prevent unauthorised access.	3.1.2
☐	Fire retardant access and containment	Facilities should refer to both AS2419.1 (Fire hydrant installations) and AS2118.1 (Automatic fire sprinkler systems) for determining water supply requirements.	3.1.3
☐	Site specific risk assessment	All sites storing tyres, regardless of volume or size, should undertake a site-specific fire risk assessment or fire safety study.	3.1.4
☐	Internal storage general requirements	Where tyres are stored internally, operators should ensure that they are in compliance with the standards set out in Volume 1 of the NCC, especially fire protection systems which are pursuant to Clause E1.10 and E2.3.	3.2

	ASPECT	ESSENTIAL REQUIREMENT	REFERENCE SECTION
☐	Internal storage – site layout and design	Site entry points should have at least 4 m clearance with access roads designed for large emergency vehicles and their weight limits. Large facilities should have at least 2 separate access points.	3.2.1
☐	Internal storage – stacking/stockpile arrangements	Where tyres are stored internally, at a minimum the following is required: • Portable storage systems that can be easily moved by forklift • Horizontal systems using pallets or shelving racks for heights exceeding 1.5 m • No obstruction of fire equipment and storage.	3.2.2
☐	Internal storage – stockpile size, dimensions and configurations	Tyre stacks within a building should not exceed 3.7 m in height or 30 m2 in area. The following boundary perimeters are required: • Building without sprinklers – minimum of 3 m between stacks and building structures • Building with sprinklers – minimum of 2 m between stacks and 1.5 m between stacks and building structures. A minimum clearance of 1 m should be maintained along paths of travel to exits or firefighting equipment access and stored tyres must be 1 m clear of roof or any structures attached to the roof.	3.2.3
☐	External storage – site/ fire access	Site entry points should have at least 4 m clearance with access roads designed for large emergency vehicles and their weight limits. Large facilities should have at least 2 separate access points.	3.3.2

	ASPECT	ESSENTIAL REQUIREMENT	REFERENCE SECTION
☐	External storage – stacking/stockpile arrangements	Tyres should not be stacked on their treads unless there is some means of containing/constraining the stacks. This containment/constraint should be fire resistant.	3.3.3
☐	External storage – stacking/stockpile arrangements	**Acceptable tyre storage configurations/ stacking** (to be used in absence of local jurisdiction regulations): For outdoor storage, tyres should be stored on their sides or laced, with tyres stacked overlapping to create a woven arrangement, unless they are restrained by some means e.g. metal cages or portable systems. Tyres should not be stacked on their treads unless they are contained by some means. This containment/constraint should be fire resistant. **Unless your licence or local regulator prescribe different requirements**, tyre stockpiles should: • not exceed 3 m in height due to potential for instability • be no more than 6 m wide and 20 m in length (arrangement in long 'thin' piles will assist firefighting operations) • Alternatively, the total volume of tyres contained in a pile should not exceed 360 m3. Aisles between tyre stockpiles should remain clear from all combustible material and allow for fire fighter access. Appropriate separation distances should be determined based on the size of the pile, a minimum separation distance of 20 m is recommended between each tyre stockpile. Differing requirements exist for NSW sites, refer to the NSW guidelines for further detail (see Section 7).	3.3.3

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☐	External storage – Separation distances	The following separation distances are recommended: • Non-combustible boundaries – at least 6 m from perimeter • Combustible boundaries or public roads – at least 20 m from perimeter if the stockpile's long sides face the boundary and 12 m from perimeter if the stockpile's narrow ends are facing the boundaries. If the building is protected with automatic fire sprinkler system that meets the AS2118.1 standards, this distance may be reduced to 10 m.	3.3.3
☐	Site Emergency Plan	All sites should develop and document an emergency plan in accordance with WHS/OHS laws and meeting Australian Standard AS3745-2010 that shows the location of all key fire equipment, site evacuation procedures and other emergency services related information. This should include appointment of an Emergency Control Organisation and a dedicated Site Safety Officer, and ensuring that all employees are trained in the emergency procedures and that they are well rehearsed.	4.1
☐	Fire Risk Assessment	All sites (new and existing) should undergo a fire risk assessment to identify fire risks and document essential site equipment and resourcing requirements. Where possible, this should be completed in consultation with your local fire authority.	4.3

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☐	Ignition source control	All potential ignition sources should be eliminated or controlled via reference to Section 25.3 of the *Code of Practice for the Storage and Handling of Dangerous Goods (Safe Work Australia)* in particular: • Regular inspection of all electrical equipment and machinery • Control of smoking at the site (i.e. only in designated areas away from hazards) • Control/exclusion of open flames or hot work within 3 m of tyre storage areas (via hot work permitting) • Keep site clear or minimise flammable material around tyre storage areas • Ensuring that storage of flammable or combustible liquids are not within 30 m of any tyre storage.	4.5
☐	Staff training	All staff should also be trained in implementation of the site emergency plan and emergency response procedures, in accordance with the Work Health and Safety Regulations. It is recommended that all staff are trained in basic fire prevention methods and operation of installed fire equipment.	4.9

	ASPECT	ESSENTIAL REQUIREMENT	REFERENCE SECTION
☐	Fire safety and emergency equipment – general water supply and accessibility	Water provided for fire systems should be potable or Class A recycled water. **Internal storage**: Operators need to be able to provide adequate water supply for firefighting operations. Facilities should refer to both AS2419.1 and AS2118.1 for determining water supply requirements. **External storage**: A site-specific assessment should be undertaken to determine capacity. As an absolute minimum ensure that there is adequate water supply of 2 x 250,000 L tanks where town water is insufficient.	5.1.2
☐	Fire safety and emergency equipment – firewater containment capacity	For best practice **internal storage**, the NSW/SA method may be used to determining the required containment capacity: • **Hydrant and sprinkler system** – calculate containment capacity on basis of 2 hydrants operating simultaneously at 10 L/s each (no less than 20 L/s altogether) (in addition to the buildings maximum sprinkler design output operating for period of 90 minutes). • **No sprinkler system** – calculate containment capacity on basis of 3 hydrants operating simultaneously at 10 L/s each (no less than 30 L/s altogether) for a period of 90 minutes. For external storage (and both situations in Victoria) the capacity should be determined as part of a site-specific fire risk assessment. You can refer to the NSW and SA guidelines (see Section 7) for guidance and refer to your local regulator for advice specific to your jurisdiction.	5.1.3

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☐	Internal storage – fire hydrant systems	Depending on your building size, a fire hydrant system complying with AS2419.1 (greater than 500 m2) and a fire hose reel should be installed. The flow rate of each hydrant should be based on a minimum flow rate of 10 L/s per hydrant. The number of hydrants required should be based on Standards Australia, 2004, AS2419.1 (Amend Nos 1 and 2) Fire hydrant installations – Part 1: System design, installation and commissioning	5.2.3
☐	Internal storage – building compliance	Tyre storage facilities should ensure that they are in compliance with the standards set out in Volume 1 of the NCC, especially fire protection systems which are pursuant to Clause E1.10 and E2.3. *Ref: National Construction Code Volume One, Building Code of Australia Class 2 to Class 8 Buildings, 2014, Canberra ACT, Australia*	5.2.1
☐	Internal storage – smoke hazard management system	All indoor tyre storage facilities should have a smoke hazard management system in accordance with Clause E2.3 and Specification E2.2c of Volume 1 of the NCC or as a minimum, provision of permanent natural ventilation in accordance with Table 2.2a, Volume 1 of the NCC	5.2.5
☐	Internal storage – sprinkler systems	Indoor tyre storage facilities storing in excess of the threshold defined for combustible goods in Table E1.5 (relevant to your state/territory) of Volume 1 of the NCC should have sprinkler system complying with AS2118.1 be installed. In Victoria, this is required regardless of the quantity stored. *Ref: Standards Australia, 2006, AS2118.1 Automatic fire sprinkler systems – Part 1: General systems*	5.2.4

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☐	External storage – fire hydrants	Sites should install a fire hydrant system complying with AS2419.1; Standards Australia, 2004, AS2419.1 (Amend Nos 1 and 2) Fire hydrant installations – Part 1: System design, installation and commissioning	5.3.2