



Publicly Available Specification

New Zealand Fire Service Firefighting Water Supplies Code of Practice

Superseding SNZ PAS 4509:2003

SNZ PAS 4509:2008



COMMITTEE REPRESENTATION

This Code of Practice was prepared under the supervision of the P 4509 Committee the Standards Council established under the Standards Act 1988.

The committee consisted of representatives of the following:

Nominating Organisation	Committee Member
BRANZ Ltd	Ed Soja
Department of Building and Housing	Alan Moule (Observer)
Fire Protection Association New Zealand Inc	Nigel Robinson
Ingenium	Eric Cawte
Insurance Brokers Association of New Zealand Inc	Peter Hughes
Local Government New Zealand	Logen Logeswaran
New Zealand Fire Equipment Association	David Hipkins
New Zealand Fire Service	Brian Davey
New Zealand Fire Service	Ian Millman
New Zealand Fire Service	James Firestone
New Zealand Water & Wastes Association	Johan Ehlers

ACKNOWLEDGEMENT

Standards New Zealand gratefully acknowledges the contribution of time and expertise from all those involved in developing this document.

© COPYRIGHT

The copyright of this document is the joint property of the Standards Council and the New Zealand Fire Service. No part of it may be reproduced by photocopying or by any other means without the prior written approval of the Chief Executive of Standards New Zealand unless the circumstances are covered by Part III of the Copyright Act 1994.

Standards New Zealand will vigorously defend the copyright in this document. Every person who breaches Standards New Zealand's copyright may be liable to a fine not exceeding \$50,000 or to imprisonment for a term not to exceed three months. If there has been a flagrant breach of copyright, Standards New Zealand may also seek additional damages from the infringing party, in addition to obtaining injunctive relief and an account of profits.

Published by Standards New Zealand, the trading arm of the Standards Council, Private Bag 2439, Wellington 6140. Telephone: (04) 498 5990, Fax: (04) 498 5994. Website: www.standards.co.nz

FIRE SERVICE INTERPRETATION

<i>No.</i>	<i>Date of issue</i>	<i>Description</i>	<i>Location</i>
1	July 2009	Hardstand access (figures B4, L2(a), L2(b), and L2(c).	On page 2 of this edition

Publicly Available Specification

**New Zealand Fire Service
Firefighting Water
Supplies Code of
Practice**

ISBN 1-86975-112-4



New Zealand Fire Service interpretation on SNZ PAS 4509:2008
New Zealand Fire Service firefighting water supplies code of practice

Where the hardstand as illustrated in this code of practice (figures B4, L2(a), L2(b), and L2(c)) does not provide for fire appliance access within 18 m of an entry point to any building, the hardstand may be used by the NZFS for relay pumping or other operations supporting the fire appliance situated at a hardstand closer to the building.

The hardstand as illustrated in this code does not negate the requirement to provide fire appliance access requirements in accordance with the New Zealand Building Code and other relevant Standards. Early consultation with the NZFS is recommended during the design phase to gain prior approval and acceptance in principle of any proposals affecting firefighting operations.

Issued: July 2009

Contents

Committee representation	IFC
Acknowledgement	IFC
Copyright	IFC
Referenced documents	5
New Zealand legislation	5
Preface	7
Foreword	8
Review	8

Section

1	General	9
1.1	Aims	9
1.2	Legal context	11
1.3	Legislative requirements of territorial local authorities	11
1.4	Interpretation	12
2	Definitions and abbreviations	13
2.1	Definitions	13
2.2	Abbreviations	16
3	Symbols and units	17
4	Use of the Code of Practice	17
4.1	Application	17
4.2	Classification of water supply	18
4.3	Method for determination of firefighting water supply	18
4.4	Method for calculation of firefighting water supply	18
4.5	Assessment	22
4.6	Recording of water requirements	22
5	Running (Dynamic) pressure	22
6	Fire Service vehicle access to water source	23
6.1	Background	23
6.2	Fire hydrant location	23
6.3	Uncharged water mains	23
6.4	Hardstand requirements	23
6.5	Access to alternative firefighting water sources	23
7	Inspection and testing of fire hydrants	24
8	Fire protection systems	24
9	Disputes	24

Appendix

A	Other relevant documents	25
B	Alternative firefighting water sources	26
C	Sprinkler demand	33
D	Legislative requirements	34
E	Procedure and checklist for building consent documentation	36
F	Approved Standards	40
G	Testing of fire hydrants	41
H	Calculation of maximum fire size	48

J	Water extinguishing capability	55
K	Water supply system classification	58
L	Specification, location, and marking of fire hydrants	63

Table

1	Method for determining required water supply classification.....	19
2	Method for determining firefighting water supply	20
C1	Example of practical water requirements.....	33
G1	Values indicative of a graph on a linear scale	45
H1	Single firecell structure with 3 windows and 1 roof vent	51
H2	Typical heat release rates from fuel controlled fires for various structure types	53
H3	K ₁ Human intervention	54
H4	K ₂ Fire safety features.....	54
J1	Water accessibility coefficient C ₁	56
J2	Water reliability coefficient C ₂	56
J3	Water flows from fire hydrants	57
K1	Example of calculating flow.....	61
K2	Comparison of firefighting capacity of the water supply network with the firefighting water requirements	62

Figure

B1	Suction sources.....	28
B2	Suction sources – fixed, static pick-up.....	29
B3	Flooded sources – water supply above road level.....	30
B4	Examples of how alternative water supplies can be delivered to within 90 m of a hazard	31
E1	Firefighting water supply requirements for a non-sprinklered house with access to a reticulated supply.....	37
E2	Firefighting water supply requirements for an unsprinklered house with no access to a reticulated water supply	38
E3	Firefighting water supply requirements for a sprinklered house with no access to a reticulated water supply.....	39
G1	Example of pressure/flow characteristic of a hydrant supply	46
H1	Fire growth curve	49
H2	Single firecell structure with 3 windows and 1 roof vent	51
K1	Reservoir storage.....	59
L1	Fire hydrant marking	64
L2(a)	Code requirements for the location and spacing of fire hydrants (Example 1)	67
L2(b)	Code requirements for the location and spacing of fire hydrants (Example 2)	68
L2(c)	Code requirements for the location and spacing of fire hydrants	69

REFERENCED DOCUMENTS

Reference is made in this document to the following:

NEW ZEALAND STANDARDS

NZS 4404:2004	Land development and subdivision engineering
NZS 4512:2003	Fire detection and alarm systems in buildings
NZS 4515:2003	Fire sprinkler systems for residential occupancies
NZS 4517:2002	Fire sprinkler systems for houses
NZS 4521:1974	Specification for boxes for fire brigade connections
NZS 4541:2007	Automatic fire sprinkler systems
NZS 9201.7:2007	Model general bylaws – Water supply
NZS/BS 750:1984	Specification for underground fire hydrants and surface box frames and covers
SNZ PAS 4505:2007	Specification for firefighting waterway equipment

AUSTRALIAN STANDARD

AS 1668.3:2001	The use of ventilation and airconditioning in buildings – Smoke control systems for large single compartments or smoke reservoirs
----------------	---

BRITISH STANDARD

BS 3251:1976	Indicator plates for fire hydrants and emergency water supplies
--------------	---

OTHER PUBLICATIONS

Buchanan A.H.	Structural design for fire safety. Chichester: John Wiley & Sons, 2001
Department of Building and Housing	New Zealand Building Code Handbook and Approved Documents
Land Transport Safety Authority	Traffic note 25, Retroreflective raised pavement markers, 2004
New Zealand Fire Service training note	Flow testing of water mains and hydrant inspections
Transit New Zealand	Manual of traffic signs and markings – Part II: Markings
TNZ M/07:2006	Road marking paints

NEW ZEALAND LEGISLATION

Building Act 2004
 Fire Service Act 1975
 Health and Safety in Employment Act 1992
 Local Government Act 2002 and 1974
 Resource Management Act 1991

RELATED DOCUMENTS

A list of related documents is set out in Appendix A.

Latest Revisions

The users of this Publicly Available Specification should ensure that their copies of the above-mentioned Standards are the latest revisions. Amendments to referenced New Zealand and Joint Australian/New Zealand Standards can be found on <http://www.standards.co.nz>.