

EN 1176-1:2008-08 (E)

Playground equipment and surfacing - Part 1: General safety requirements and test methods

Contents	Page
Foreword	4
Introduction	6
1 Scope	7
2 Normative references	7
3 Terms and definitions	8
4 Safety requirements	15
4.1 Materials	15
4.1.1 General	15
4.1.2 Flammability	15
4.1.3 Timber and associated products	15
4.1.4 Metals	16
4.1.5 Synthetics	16
4.1.6 Dangerous substances	16
4.2 Design and manufacture	16
4.2.1 General	16
4.2.2 Structural integrity	17
4.2.3 Accessibility for adults	18
4.2.4 Protection against falling	18
4.2.5 Finish of equipment	22
4.2.6 Moving parts	22
4.2.7 Protection against entrapment	22
4.2.8 Protection against injuries during movement and falling	27
4.2.9 Means of access	38
4.2.10 Connections	40
4.2.11 Consumable components	40
4.2.12 Ropes	40
4.2.13 Chains	42
4.2.14 Foundations	42
4.2.15 Heavy suspended beams	43
5 Test methods and reports	44
6 Information to be provided by the manufacturer/supplier	45
6.1 Information to be provided by the manufacturer/supplier of playground equipment	45
6.1.1 General product information	45
6.1.2 Pre-information	45
6.1.3 Installation information	45
6.1.4 Inspection and maintenance information	46
6.2 Information to be provided by the manufacturer or supplier of impact-attenuating surfacing	47
6.2.1 Pre-information	47
6.2.2 Installation	47
6.2.3 Inspection and maintenance	47
6.2.4 Identification of impact-attenuating playground surfacing	47
7 Marking	48

7.1	Equipment identification	48
7.2	A.1 Permanent loads	49
A.2	Variable loads	49
A.3	Number of users on the equipment	54
B.1	General principles: Limit state	56
B.2	Load combinations for static analysis	57
	Basic level mark	48
	Annex A (normative) Loads	49
	Annex B (normative) Method of calculation of structural integrity	56
B.3	Worked example of the calculation of user loads (without safety factors)	58
B.4	Calculation of forces acting on a swing seat	61
B.5	Worked examples for forces acting on a swing (without safety factors)	63
B.6	Calculation of forces acting on the cable of a cableway	64
B.7	Worked example for forces acting on a cableway (without safety factors)	66
C.1	Pass/fail criteria	69
C.2	Test load for equipment	69
C.3	Load application	70
C.4	Test report	70
D.1	General	71
D.2	Head and neck entrapment	71
D.3	Entrapment of clothing (Toggle test)	77
D.4	Finger entrapment	80
F.1	General	85
F.2	France	85
F.3	Germany	85
	Bibliography	88
	Annex C (normative) Physical testing of structural integrity	69
	Annex D (normative) Test methods for entrapment	71
	Annex F (informative) A-deviations	85
	Annex E (informative) Overview of possible entrapment situations	83