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Playground and recreational areas — Framework for the competence of playground inspectors and playground maintenance technicians

Aires de jeux et de loisirs — Cadre définissant les compétences des inspecteurs des aires de jeux et des techniciens en assurant la maintenance

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by Technical Committee ISO/TC 83, *Sports and other recreational facilities and equipment.*

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Based on a review of many international playground and recreation area standards, it is clear that there is a broad spectrum of competence in inspectors of playground environments that goes beyond just the black and white application of the various performance requirements found in current playground standards. Many maintenance and repair tasks can be easily identified and corrected with some very basic knowledge, experience, and skills. However, with the many elements involved in the playground environment, such as equipment, environment, children, an inspection of a playspace is not solely a "technical" inspection but also requires knowledge of how and why children of all abilities play. Inspectors should understand the way children play, interact, evolve, and develop to be able to make informed, balanced decisions about the safety of the playground environment. There is international consensus among experts to describe the needed competences of playground inspectors and technicians in the public playground environment. For maintenance technicians, this document intends to harmonize the intent of the different levels of inspections commonly being performed around the world.

As stated in EN 1176-1: "Risk taking is an essential feature of play provision and of all environments in which children legitimately spend time playing. Play provision should aim to offer children the chance to encounter acceptable risks as a part of a stimulating, challenging and controlled learning environment. Play provision should aim at managing the balance between the need to offer risk and the need to keep children safe from serious harm." The aim should be to provide as much play value as possible and as little safety as necessary. In this vision on the safety of playground environments it is essential that the inspector and maintenance technicians not only know the technical content of the related standards, but at a certain level of expertise also understand why and how to make risk assessments and/or a benefit-risk analysis.

The way in which children play and the public perception of children's play vary from country to country; with this in mind, it is vital that the inspector and technician be aware of the cultural differences that exist. They should be familiar with what is an acceptable level of risk or challenge for the country in which they are employed or contracted. Cultural and socioeconomic differences cannot and can never be an argument to withhold children from a beneficial risk/challenge while playing in a reasonably safe environment.

This document accepts that there can be variations in working practices in different countries. Irrespective of established systems, inspectors should have necessary competence to undertake the tasks.

The lack of safety knowledge by some product and layout designers cannot be compensated for by the expertise of inspectors or maintenance technicians. Owners/operators of one or more playgrounds have the responsibility for all operational aspects of the playspace and should have or acquire competency and knowledge. Installers should have correct detailed technical documents to work with as well as a basic level of knowledge about safety which can help to solve problems arising during installation. Manufacturers should have a high level of knowledge. In general, safety relates to everything from the inception of a playground project to the end of its lifecycle.

Staff training is vital to the success of a comprehensive program of playground management. The users of this document are encouraged to take this information and share it with everyone involved in the management and day-to-day operation of a public playground. The contents provide a road map for success in achieving well managed public playground environments; but, like any map, one should learn how to read it and understand the various keys and symbols found on the map.

Inspection and maintenance/repair are equally important; when implemented together they create a safer, clean, and functioning playground environment free of hidden dangers and known hazards that only a trained playground safety inspector and playground maintenance technician can identify and one that children deserve.

Timely and thorough inspections coupled with the application of proper routine and preventive maintenance practices should be considered standard operating procedures. This action requires trained persons with knowledge and experience in not just how to do something but also why it

is required and when it is to be done to meet the manufacture/designer requirements for correct functionality and injury prevention. While knowledge is most important it also requires a certain amount of skill which comes with experience and additional training.

Regardless of the quantity or quality of these routine visual and operational playground inspections some playground owners can have licensing or legislated inspection requirements for specific types of play areas. Some types of playground inspections can require specific inspector education or certification in order to conduct these inspections. As an example, in Ontario Canada it is a commercial childcare center's licensing requirement to conduct an annual playground inspection including the testing of the impact attenuating surfacing. This type of annual inspection is becoming more common whenever the owner has been determined to have a higher duty of care. As a result, the owner requires a higher level of inspector competency and experience. An annual comprehensive inspection includes a thorough review of the entire playground environment, the playground equipment, the performance of the impact attenuating surfacing, and a discussion with the owner as to the playground's ability to meet the original intended goals and objectives of the owner's initial playground plan. As part of the annual comprehensive inspection report, the inspector should be looking for visual evidence that the owner has been conducting routine safety inspections and has performed regular custodial and preventive maintenance throughout the year. Playground owners are required to retain written records related to the installation, maintenance, repair, and inspections of each playground. To facilitate the record keeping, many equipment and surface system manufacturers provide forms and checklists. The inspector should review the owner's written inspection and maintenance records looking for visual and written evidence of routine playground maintenance practices. The playground owner cannot effectively maintain and repair the playground without access to these records. Therefore, the annual comprehensive inspection should be able to illustrate the playground owner's diligence in meeting emerging trends in usage while still meeting the minimum requirements for written documentation and record keeping as specified in the applicable local standards and guidelines.

Irrespective of how effective the playground inspection and maintenance program are there will likely be an incident that results in a serious injury to a playground user. How a playground accident investigation is addressed can make a big difference in the overall liability exposure of the playground owner or operator. An incident investigation should focus on cause or cascade of causes which can lead to prevention of similar injuries. Sound investigation can aid in litigation defence. Good risk management/loss control practices detail what to do in the event of an accident. The owner/operator should make sure there is an accident/incident procedure in place. If not, one should be prepared with the assistance of the owner's appropriate legal adviser to provide incident management. The policy or procedure should be approved by the appropriate authority and published as part of the standard playground operating procedures. This procedure should include an accident/incident report form and the appropriate staff should be trained on how to complete the form. This staff training should include appropriate content of verbal or written statements taken from witnesses or ones that can be made to the injured party, witnesses, and the media. The last thing the owner/operator needs is for an employee to make a statement that can be perceived as an admission of liability.

By following this document, the playground owner can implement the necessary steps to assure their playground inspectors and maintenance technicians have the necessary competencies required by persons conducting the various levels of inspections and maintenance/repairs previously mentioned and as documented in PD CEN/TR 17207:2018. It is recognized that different countries and jurisdictions have cultural, technical, and legal differences that play an important role in the provision of inspections, maintenance, repairs, replacement, and removal of recreation and play equipment and components.

Users of this document should familiarize themselves with the vocabulary commonly used in the field of playground performance. Without an understanding of the vocabulary, the owners/operators, inspectors, and maintenance technicians will find themselves at a disadvantage when it comes to reading, writing or communicating issues that can have serious consequences to the users of the playspace.

Although the focus of this document is specific to the public playground and the space in which it is situated, the information and principles can be generally applied to other aspects of public play and recreation features such as waterplay (splashpads), skateboarding, outdoor fitness, etc. that are found in public access settings.

Playground and recreational areas — Framework for the competence of playground inspectors and playground maintenance technicians

1 Scope

This document gives guidance and requirements for the education, examination and evaluation of the inspectors' and maintenance technicians' competence concerning public playground and recreational areas. This document describes the knowledge and competence required for each specific task an inspector or technician performs.

This document is intended primarily for public playgrounds, but the principles are applicable to other recreational areas.

This document does not include benefit/risk assessment methods.

This document does not cover the competence of staff conducting product certification.

NOTE 1 The different types of inspections covered are: routine visual inspection; operational inspection; annual main inspection; post-installation inspection; post-accident inspection; pre-installation consultation; mid-installation surveillance.

NOTE 2 This document can be applicable to: roller-sport infrastructure; multi-sport arenas; outdoor exercise equipment; bouldering walls; portable and permanent socketed goals; parkour facilities; adventure playgrounds; ropes courses; inflatable play equipment.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/TR 20183, *Sports and other recreational facilities and equipment — Injury and safety definitions and thresholds — Guidelines for their inclusion in standards*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/TR 20183 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
inspector
competent person (3.3) qualified to undertake inspections of *playground environments* (3.12)

3.2
competence
ability to apply *knowledge* (3.15) and skills to achieve intended results

[SOURCE: IWA 26:2017, 3.9]

3.3
competent person
person who has acquired through training, qualifications or experience, or a combination of these, the *knowledge* (3.15) and skills enabling that person to perform a specified task

[SOURCE: ISO 17842-1:2015, 3.6]

3.4
routine visual inspection
inspection intended to identify obvious hazards that can result from normal use, vandalism or weather conditions

Note 1 to entry: Typical hazards can take the form of broken parts or broken bottles.

3.5
operational inspection
inspection, more detailed than *routine visual inspection* (3.4), to check the operation and stability of the equipment

Note 1 to entry: Typical checks include an examination for wear, rotting and corrosion.

3.6
annual main inspection
inspection intended to establish the overall level of *safety* (3.18) of equipment, structural stability, foundations and playing surfaces

Note 1 to entry: This inspection is to include the determination of conformity with the relevant local standards and codes.

Note 2 to entry: Typical checks include the effects of weather, evidence of rotting or corrosion and any change in the level of safety of the equipment as a result of repairs made, or of added or replaced components.

3.7
pre-installation consultation
meeting intended to assess the design and layout of the area prior to building works commencing

3.8
mid-installation surveillance
inspection undertaken to review work in progress during installation, especially features that cannot be easily checked or corrected after completion of the project

3.9
post-installation inspection
inspection undertaken prior to the opening of a *playground environment* (3.12) for public use

3.10
post-accident inspection
inspection undertaken after a *serious injury* (3.24) on a playground to assess the *safety* (3.18) of the area and to assist in determining if any immediate works are required, with the intent of providing positive feedback on prevention of a similar occurrence

3.11
inspection report
document produced as a result of an inspection to a predetermined or agreed specification

3.12
playground environment
designated area, open to public access that can contain play equipment, ancillary items, landscaping and/or natural features

3.13
playground equipment
equipment and structures, including components and constructional elements with, or on which, children can play outdoors or indoors, either individually or in groups, according to their own rules or own reasons for playing which can change at any time

[SOURCE: EN 1176-1:2017, 3.1]

3.14
adventure playground
fenced, secured playgrounds run and staffed in accordance with the widely accepted principles that encourage children's development and often use self-build equipment

3.15
knowledge
understanding of information achieved by experience and study

3.16
risk assessment
process including a combination of *risk* (3.19) analysis, risk evaluation and optional benefit-risk analysis with the purpose of determining a quantitative or qualitative value related to circumstances resulting from a hazard

Note 1 to entry: Regarding *playground equipment* (3.13), a risk assessment is the determination of quantitative or qualitative value of risk related to a specific situation and an identified hazard. Quantitative risk assessment requires calculations of three components of risk (R): The severity of the potential injury (S), the probability of the incident occurring (P) and the exposure to the hazard (E) and opportunity to avoid the hazard (A).

$$R = S * P * E * \mathrm{A}$$

3.17
benefit-risk assessment
tool to aid *risk* (3.19) management that explicitly brings together consideration of the benefits as well as the risks of play in a single judgement

3.18
safety
freedom from unacceptable *risk* (3.19), but not safe

Note 1 to entry: Safety is achieved by reducing risk to a tolerable level.

Note 2 to entry: There is no complete absence of risk. In turn, there is no product or system that is without some risk which should be reduced to a tolerable risk.

3.19
risk
combination of the probability of occurrence of *harm* (3.20) and the severity of that harm

Note 1 to entry: The probability of occurrence includes the exposure to a hazardous situation, the occurrence of the hazardous event, and the possibility to limit the harm.

3.20
harm
injury or damage to the health of people

3.21
child development
multifaceted, integral, and continual process of change in which children become able to handle ever more complex levels of moving, thinking, feeling, and relating to others

Note 1 to entry: See Annex A for additional information about child development.

3.22
operator
person(s) or organization(s) which allows a product to be used

3.23
entrapment
type of hazard where a body, part of a body, clothing, or other element on or attached to a person can become entrapped, caught, or drawn-in resulting in the potential for serious or fatal injury

3.24
serious injury
acute physical injury requiring medical or surgical treatment or under the supervision of a qualified doctor or nurse provided in a hospital or clinic and includes injuries such as burns, fractures, lacerations, internal injury, injury to organ, concussion, internal bleeding

Note 1 to entry: All evaluations shall be considered in the light of the appropriate age of the user.

4 Inspection

4.1 General

The level of competence required to carry out different levels of inspections depending on the task to be carried out are as follows:

— level 1: competence for routine visual inspection minimal to basic;

— level 2: competence for operational inspection basic to moderate;

— level 3: competence for annual main inspection, comprehensive conformity inspection, pre-installation consultation, mid-installation surveillance, post-installation inspection and post-incident/accident inspection moderate to high.

NOTE 1 For requirements of levels of competences see 4.6.

There are three levels of inspections:

— level 1: routine visual inspection;

— level 2: operational inspection;

— level 3: annual-main-inspection, including comprehensive conformity and/or post-installation inspection and risk assessment. In addition, there are other types of inspections or activities, such as post-incident/accident inspection in level 3.

NOTE 2 Detailed information about these levels of inspections can be found in relevant national/regional documents and various training programs.

4.2 Other inspection activities

4.2.1 General

There are other activities that inspectors commonly perform but are not explained in relevant national/regional documents.

Inspectors are responsible for maintaining and calibrating the required test equipment according to the specifications in relevant national/regional and manufacturer's documents.

4.2.2 Post-incident/accident inspection

After the occurrence of a serious accident, government officials, insurance companies, manufacturers or operators may choose to carry out post-accident inspection. This report is usually only for the organization that ordered it and is carried out by an expert, who has years of experience from inspections and can determine if any immediate remedial action is required to ensure the safe operation of the equipment or area or if the area should be closed to further use until required changes can be made.

4.2.3 Pre-installation consultation

Cooperation between fellow professionals and qualified persons (designer, inspector, playground maintenance technician) to assess the design and layout of the area prior to specification, purchase and installation can result in benefits at many levels.

4.2.4 Mid-installation surveillance

The purpose of this type of inspection is to review work in progress during installation, especially features that cannot be easily checked after completion of the project.

4.3 Inspection report

4.3.1 Scope of work between the inspector and the purchaser of the inspection service

Every inspection should have a clearly stated scope of work including at least the following information:

— scope of inspection (what is to be inspected, what will not be inspected);

— type of inspection (annual main, post-installation, etc.);

— outcome of inspection (conformity with the standard, risk assessment, corrective measures);

— method of reporting (paper, online service, pdf to e-mail etc.);

— schedule in case the contract is about one inspection such as post-installation inspection;

— legal obligations of each party;

— mention inspector's liability insurance;

— statement of the inspector's qualifications and/or training certifications;

— disclaimers, if relevant (e.g. not inspecting sub-terrain structures under solid surfacing).

4.3.2 General information

The inspection report should consider at least the following (as applicable):

— number and date of the national/regional document used as a basis;

— reference to an installation contract or document;

— details of the equipment and/or surfaces to be tested;

— details on the conditions of the equipment including any defects observed before the test;

— details of any change in the condition of the equipment observed after the test;

— details of any recommended or required corrective action;

— location of the area (address);

— date and time of inspection;

— date of completion of the report and signature (digital in some cases);

— weather conditions at the time of inspection / indoor location;

— contact information for the area's owner and/or operator;

— contact information for the supplier/manufacturer of any manufactured components;

— contact information for the designer of the playspace if different from the owner, operator, supplier, or manufacture;

— purchaser of the inspection in case not the owner or operator;

— scope of inspection (what was inspected, what was not inspected);

— identification of the inspector;

— inspection criteria (standards, laws, risk assessment method, contract, etc.).

4.3.3 Inspection outcome

For play component or structure and/or surface systems inspected, the following information should be included:

— name of the manufacturer or distributor of the equipment/surface system;

— photograph showing both the location of the equipment and the detail of non-conformity and/or the hazardous situation;

— reference to the applicable requirement with a short description of its content or a detailed description about its content;

— non-conformities may require a related risk assessment;

— all maintenance defects affecting the general level of safety shall be reported.

Any recommendations of how to resolve the hazardous situation shall be clearly stated so that they are not misunderstood or executed incorrectly, creating new hazards. The inspector may give recommendations for the method of correction but should mention there may also be other ways to deal with the situation. In some cases, it can be necessary to consult the original equipment manufacturer or supplier regarding a solution that cannot be found in the specific manufacturer or designer's installation, maintenance, or repair instructions.

The scope of work should specify the limits of the playground environment that is to be inspected; the inspection report should include reference to all the elements found within the stated scope of work, for example:

— condition of fence, gate and other auxiliary items;

— nearby risks affecting the playground's overall safety level (street, river, cliff);

— existence of poisonous or hostile plants (trees with semi-dead branches, hedgerow);

— sufficiency of lights and the condition of their electrical components (this can require additional experts);

— condition of all walking surfaces (this is to include assessment of hazards and accessibility);

— playground signage.

4.3.4 Quality of inspection report

The report should have sufficient clarity and quality to present a meaningful and understandable document to the recipient. This may include for instance:

— Picture(s) in the report should be of sufficient quantity, quality, and size to illustrate the issue clearly.

— Any cropping of the image should be focused on the detail, emphasising where the problem is. If possible, two images should be used - one of the entire area and the second focused on the detail.

— Language used should be clear and comprehensible.

— Black/white prints or pdf-files scanned from printed paper should not be used as main means of delivery.

— Where technical data is generated, such as in the impact testing of the playground protective surface, the raw data should be presented and preserved as part of the permanent record.

4.4 Inspector competence

Beyond the equipment mentioned in this document, it can be necessary to assess other items that are within and around the playground environment. The scope is dependent on their interaction with the playground environment where users can access these features under reasonably foreseeable use for play e.g. gates, fences, plants, natural play features, rocks, boulders landscape features, art features. Because these features are not encompassed within the standard for playground equipment, they require risk assessment or consideration of other applicable standards. Knowledge of the meaning and intention of the standard is required to complete this assessment.

The inspector's task is to assess the general level of safety or conformity with standards of the playground environment and the equipment provided at the time of the inspection and may be based on the safety level as it was at the time of installation, where the original inspection report is available.

The inspector shall understand the importance of having a clear scope of work.

An inspector is not a professional unless otherwise a member of a professional organization. Nevertheless, they can be expert and competent.

4.5 Levels of competence for inspection and maintenance

Table 1 — Level of knowledge necessary for each level of inspection and maintenance

	Inspection			Maintenance	
	Level 1 routine visual competence (I-1)	**Level 2 operational competence** (I-2)	**Level 3 annual main competence** (See 4.1) (I-3)	**Routine maintenance competence** (M-1)	**corrective maintenance competence** (M-2)
Standards/technical reports	—	B	H/E	B	M
Risk analysis/benefit-risk analysis	—	B	M/H	—	—
Technical production	B	B/M	H	M	H
Child development	—	—	M/H	—	—
Environmental issues/ layout design	B	B	H	B	M

Table 1 *(continued)*

	Inspection			Maintenance	
	Level 1 routine visual competence (I-1)	**Level 2 operational competence** (I-2)	**Level 3 annual main competence (See 4.1)** (I-3)	**Routine maintenance competence** (M-1)	**corrective maintenance competence** (M-2)
Knowledge of Legislation: national laws / jurisdiction / responsibilities	—	B	M/H	B	M

Key

— minimal: next to none

B basic: rudimentary understanding

M medium: moderate extent of understanding

H high: detailed and profound understanding

E experts: highest possible level of understanding knowledge

NOTE 1 An expert level of knowledge is not required for a playground inspector, however experts in particular fields can be consulted when specific questions arise.

NOTE 2 The level of competence for a maintenance technician is dependent on the task to be carried out.

The level of knowledge required varies with the type of inspection or maintenance being undertaken. Table 1 should be read in conjunction with Table 2 to Table 7 to understand the level of knowledge required in each area.

NOTE The I- and M- indicate the level of knowledge and competence required in the various areas in order to perform the various levels of inspection and maintenance.

Table 2 — Knowledge levels of standards / technical reports

Minimal	Basic	Medium	High	Expert
I-1	I-2 M-1	M-2	I-3	I-3
Know that standards exist.	Know fundamentals about impact area, falling protection, entrapments.	Know fundamentals of all relevant standards and be able to apply onsite.	Detailed knowledge of all relevant standards, ability to use test equipment such as probe set (see ISO/TR 24666) and able to identify non-conformities onsite.	Comprehensive knowledge of all relevant standards and able to identify non-conformities onsite and apply to the design process.

Table 3 — Knowledge levels of risk analysis / benefit-risk analysis

Minimal	Basic	Medium	High	Expert
I-1 M-1 M-2	I-2	I-3	I-3	
No knowledge required.	By using own thinking, able to identify commonly found risks in playgrounds and apply a simple risk level to them.	By using a pre-determined risk level matrix with examples, able to identify risks.	Able to identify risk and prepare a detailed assessment identifying potential hazards and incorporate preventive or control measures. Evaluation of the balance of the completed risk assessment and the benefit-risk-analysis.	Able to identify risk and use several varying methods of risk assessment to provide a detailed assessment and incorporating preventive or control measures.

Table 4 — Knowledge levels of technical production

Minimal	Basic	Medium	High	Expert
	I-1 I-2	I-2 M-1	I-3 M-2	
Understand that there are different materials with different properties.	Recognize commonly used materials and know their basic properties.	Recognize materials, fixing methods; be able to identify wear, rot or corrosion.	Recognize all materials, identify fixing methods and their weaknesses, and be able to identify levels of wear, rot and corrosion and to recommend preventative or control measures.	Qualified engineer with experience in design and manufacture of playground equipment and surfacing.

Table 5 — Knowledge levels of child development

Minimal	Basic	Medium	High	Expert
I-1 I-2 M-1 M-2		I-3	I-3	
Understand that children develop different skills gradually as they grow.	Understand the basic principles of how play assists child development.	Understand the main principles of how play assists child development and why some level of risk can be beneficial. Also, basics of needs of less competent children.	Understand needs of children regarding playing and risk, how children develop various skills and what needs less competent children have.	Qualified person likely to have a college or university level degree in child development.

Table 6 — Knowledge levels of environmental issues

Minimal	Basic	Medium	High	Expert
	I-1 I-2 M-1	M-2	I-3	
No specific requirements.	Able to identify unhygienic objects, to recognize if loose fill levels are low or damages to other types of surfacing and playground surrounds.	In addition to basic knowledge, identify trip hazards, gate closure problems and other changes in environment that could cause hazards.	In addition to previous, knowledge of different types and properties of playground surfacing and ability to assess the condition of the surfacing, understanding of hazards that can be created by water, vehicular traffic or any other environmental aspect.	Expertise (qualifications) can be obtained on some specific aspect such as head injury criterion (HIC) testing, vegetation or water quality. But in general, knowledge about environmental issues can only reach a level that is considered high.

Table 7 — Knowledge levels of national laws / jurisdictions / responsibilities

Minimal	Basic	Medium	High	Expert
I-1	I-2 M-1	I-3 M-2	I-3	
Know that laws exist.	Know fundamental service and product liabilities.	Know fundamental service and product liabilities, understand the impact these may have on the play facility.	Reasonable knowledge of applicable laws and understanding of how these would be applied to the provision and operation of play facilities.	Qualified solicitor or barrister.

4.6 Learning goals for level 3 inspectors

4.6.1 General

In 4.6.2 to 4.6.7, each point of knowledge is detailed to specific learning goals which an inspector should master in order to be considered competent. A level 3 inspector is competent in both level 1 and level 2 requirements. The structure follows Tables 2 to 7.

4.6.2 Standards / technical reports

The inspector should demonstrate at least the following abilities.

— Apply applicable references to the appropriate standards/technical reports and show adequate knowledge and understanding of these documents. This includes, but not exclusively, the major measurements, test methods for entrapment and the use of templates, rods and probes, materials, substances, protection against falling, means of access, free space, falling space and zoning, ropes and chains, stairs, clearances, use zones, and protective surfacing zones, etc.

— Have substantial understanding of all related requirements and test methods for all types of equipment installations, different types and methods of inspection, schedules, reports, documentation, and safety requirements.

— Will have a sound understanding of impact attenuating surfaces (IAS) testing including the operation and interpretation of the testing results.

— Have sufficient knowledge about dangerous substances, flammability, foundations and loading, structural design and use of directives.

— Have the practical ability to identify faults and problems.

4.6.3 Risk analysis / benefit-risk analysis

The inspector should demonstrate at least the following abilities.

— Carry out risk assessment based on a systematic method which yields consistent results.

— Explain the reasoning behind the assessment.

— Identify preventive or control measures.

— Undertake benefit-risk analysis.

— Have knowledge of the different types, styles, varying severity and frequency of injuries within the playground environment.

— Recognize the types of injuries that can occur on various types of equipment and to understand the need for risk management.

NOTE See Annex B for additional information about risk assessment.

4.6.4 Technical production

The inspector should demonstrate at least the following abilities.

— Have knowledge of the various ranges and manufacturers of equipment commonly found in playgrounds.

— Understand the major production and treatment processes related to component preservation, together with their strengths and weaknesses.

— Understand the concept of IAS and have knowledge of the surfaces commonly available and the strengths and weaknesses of each type as well as the merits of variations in g, HIC and HIC duration for reduction of injury frequency and severity.

4.6.5 Child development

The inspector should demonstrate at least the following abilities.

— Have knowledge about children's development and how this influences their play and actions in playground environments.

— Have knowledge about how different types of playground environments and play equipment interact with children's activities and actions.

— Have knowledge about how children's play and development can be supported and facilitated by affordances in the playground environment and stimulating play equipment.

— Have knowledge about how a playground environment can be designed to meet all children's (gender, age, level of functioning) needs for play, development and learning.

— Understand children's need to encounter risks and how that contributes to their development.

4.6.6 Environmental issues / layout design

The inspector should demonstrate at least the following abilities.

— Understand the design and layout principles and where applicable, the requirements of standards for playgrounds.

— Understand the need for separation between playground and other recreational sporting activities.

— Analyse and make constructive criticism on both proposed and existing playgrounds and/or plans regarding for instance the need for separation of ages and movement flows.

— Understand faults and problems with ancillary equipment including fences, gates, litterbins etc.

— Understand advantages and disadvantages of commonly used surfacing materials.

— Identify common plants and vegetation with their potential hazards in or near to children's playgrounds.

4.6.7 Knowledge of legal requirements

The inspector should demonstrate at least the following abilities.

— Understand the need for, and requirement of, inspection and record keeping.

— Know what local or national laws apply and understand their range and implications.

— Know how to deal with the public, children and self.

— Recognize the vulnerable situations each of the foregoing may find themselves in

— Identify ways of reducing personal risk in various potentially difficult situations.

4.7 Cooperation with other parties

4.7.1 General

The owner or operator hires an inspector as an expert to provide information concerning hazards and risks at a playground. The inspector inspects equipment, impact absorbing surfacing and the layout and produces a report.

If the design of equipment is to be changed, the manufacturer should be consulted; in the absence of the original manufacturer a competent person should be consulted.

The best results are normally achieved when owner, operator, designer, manufacturer, installer, and inspector cooperate openly.

4.7.2 Code of conduct and ethics

The purpose of this subclause is to promote the highest standards of competent practice, responsibility, and ethics within the play inspection field.

At all times inspectors shall uphold the good standing and reputation of the inspection field; and their responsibilities shall be to:

— ensure that the health and safety of users, including their personal safety, is a primary consideration during any inspection;

— demonstrate conformity with all statutory and other legal requirements of the country in which they work;

— not misuse their authority or office for personal or other gain;

— provide adequate insurance related to personal and professional liability.

Inspectors shall observe the following standards.

a) General conduct

Inspectors shall always conduct themselves in such ways as appropriate to gain the respect of the general public, their clients, their employers, manufacturers and inspectors of their own and other organisations with whom they come into contact.

b) Application of skills

Inspectors shall use their skills with integrity. They shall carry out all inspections to the best of their ability and not undertake work for which they are not competent.

Inspectors should ensure that they have at all times access to the relevant documentation relative to the level of inspection (e.g. copies of the current standards, technical reports) and that they have the appropriate equipment (e.g. probes) to carry out a competent inspection.

c) Confidentiality

Inspectors should treat all information with their client or employer as confidential unless:

— this compromises the primary purpose of the inspection which is to ensure the health and safety of children using the play facility;

— permission has been given by agency with the appropriate authority to allow the sharing of the data or information.

d) Declaration of conflict of interests

Inspectors shall declare to their client or employer any personal interest that can be considered to impinge on their impartiality in performing their duties. It is important to understand that almost everyone has conflicts of interest but they are not necessarily a detriment, provided it does not affect the outcome of the inspection.

e) Inducements to influence proper judgment

Inspectors shall neither offer nor accept any gift, favour or hospitality that is intended as, or which may be deemed by others to have the effect of, bribery and corruption. Inspectors shall only accept fees or remuneration in connection with services rendered to their client or employer.

f) Transparency of the inspection process

The inspection and advice provided shall not be influenced by any commercial, financial, or other pressures. They should reflect the interests of the commissioning agency and the users of the play facility.

Where the inspector is employed by a commercial company it is desirable that the inspector is separate from sales, spare parts and maintenance services or shall declare any conflict to the party engaging the inspector and have it noted in the report. Depending on the population density, inspection conflicts of interest can be unavoidable, making transparency essential to the integrity of the inspection process.

Inspectors or their company/organization shall not allow commissioned inspections to be undertaken by other parties (e.g. employees or business partners) who are not competent to inspect at that level.

g) Prejudicing the interests of others

Inspectors shall not maliciously or recklessly damage or attempt to damage the reputation or prospects of others.

h) Responsibility

Inspectors should accept responsibility for all work undertaken by them or under their supervision or direction and shall take all reasonable steps to ensure that those working under their supervision or direction are competent to carry out the tasks assigned to them. The person or organization providing

the inspection service shall understand that they are responsible for the inspection, within the scope of their work and they have liability for errors, omissions and/or failures to prevent serious injury.

i) Equal opportunities

Inspectors shall have regard for equality of opportunity for all in carrying out their duties in a competent manner and not discriminate directly or indirectly on the grounds of gender, marital status, sexual orientation, age, race, ethnic or national origin, religion or disability.

j) Health and safety

Inspectors shall ensure that they consider health and safety in carrying out their duties and avoid any action that can endanger the health and safety of any person.

k) Environment

Inspectors shall take all reasonable steps to avoid waste of natural resources or damage to the environment.

l) Continuing educational development

Inspectors should take all reasonable steps to maintain and develop their competence. Inspectors should ensure that they maintain up to date awareness of developments in the field of play safety and ensure that they have systems for maintaining and demonstrating competence.

m) Training

Inspectors shall be encouraged and encourage those under their supervision or direction to improve their performance in the tasks assigned to them and to improve their competence by engaging in suitable training/examination.

Inspectors or their company/organization shall not allow commissioned inspections to be undertaken by other parties (e.g. employees or business partners) who are not competent to inspect at that level unless they are accompanied and under the direct supervision of an inspector with the appropriate level of qualification at all times.

n) Insurance

Inspectors shall ensure that they are covered by appropriate levels of professional indemnity and public liability insurance while performing their inspections and assigned responsibilities.

o) Breaches of the code of conduct

Systems should be in place to deal with any breaches of this code of conduct (systems may vary from country to country).

5 Maintenance and repair

5.1 General

Maintenance is a shared responsibility. The manufacturer of the play equipment and protective surfacing is responsible to provide clear and concise maintenance instructions. The owner/operator has the obligation to ensure that the playground area and equipment is maintained according to the manufacturer's instructions and any other relevant standards and be able to demonstrate compliance with appropriate laws. The owner/operator should ensure that a proper maintenance schedule is in place and is executed diligently by competent maintenance technicians. To achieve this, the owner/operator shall be aware that choosing a competent technician for the task is essential. Basic routine maintenance tasks such as painting, litter removal, levelling or replenishing loose fill surfacing materials, or very basic component replacement demand less knowledge and competences to be performed in a proper manner. On the other hand, corrective maintenance that may involve more in-depth knowledge and experience of materials and techniques used shall demand a higher skilled technician. In any case, the

maintenance tasks should always be carried out according to the requirements of the manufacturer's instructions. The competent technicians may be from within the owners/operator's organisation or external entities.

As there are different levels of maintenance (routine and corrective), the supervisor of the repair/maintenance crew who is responsible for conducting the maintenance and repair and overall condition and appearance of the play area should have a higher level of competence. This also include a higher level of knowledge, skill, and experience commensurate with the specific tasks. All expected levels of technician competencies are detailed in Table 1 to Table 7.

5.2 The importance of maintenance in relation to injury prevention

To reduce injuries and to maintain the necessary levels of injury prevention of the equipment and surfaces, the operator should ensure that an appropriate maintenance schedule is established, adequately funded, implemented, and maintained. This should take into account local conditions and any manufacturer's instructions that may affect the necessary maintenance frequency. The schedule should list the components of equipment as well as how the equipment and its protective surfacing is to be maintained. The maintenance schedule should also give procedures for dealing with complaints and equipment breakdowns. These complaints and equipment breakdowns can require removing or replacing a playground equipment component, the entire piece of equipment, or removing the entire playground from service so the public is protected from accessing and using any part of the playground that is defective. Keeping records of the maintenance and repairs that have been performed throughout the playground and all its amenities is necessary to provide proof of good ownership and is as important, as retaining all the initial documents for the playground design, installation instructions, and inspection reports throughout its useful life.

5.3 Types of maintenance

5.3.1 General

Maintenance can be divided in 2 main categories. They are often referred to as routine custodial along with minor preventive tasks and corrective maintenance/replacement. These categories are indispensable in order to maintain an adequate level of injury prevention on playgrounds and have their own specific points of attention. The main focus should always be on prevention, thus routine maintenance, while corrective maintenance may be needed in specific situations.

Inspections shall determine the current standard of care at a point in time for the playground area. It provides some frame of reference for meeting the owner/operator's responsibility to the public with regard to injury prevention. Playground maintenance/repairs technicians have the duty to maintain that desired standard of care.

5.3.2 Routine maintenance

The routine maintenance of playground equipment and surfacing should consist of custodial as well as preventative measures to maintain their minimal level of injury prevention. Such measures should include the following, as well as any other requirements as may be deemed necessary:

a) tightening, replacement of worn or missing of fasteners;

b) maintenance of equipment surface finishes;

c) maintenance of any impact attenuating surfacing;

d) lubrication of bearings;

e) basic component replacement;

f) cleaning;

g) removal of broken glass and other debris or contaminants;

h) removal of graffiti and other undesirable markings on equipment

i) verifying depth of loose fill surface material;

j) restoring loose fill material to the correct level;

k) maintenance of free spaces and falling spaces free from obstacles;

l) reporting dead landscape plant materials and tree limbs in trees adjacent to the playground;

m) applying appropriate protective coating such as paint or stain.

5.3.3 Corrective maintenance

Corrective maintenance should include measures to correct defects resulting from use or vandalism, or to re-establish the necessary levels of injury prevention of the playground including the playground equipment and surfacing. Such measures may include:

a) welding or welding repairs;

b) replacement of worn or defective parts;

c) replacement of defective structural components;

d) replacement/repair of defective impact attenuating surfacing;

e) effectively taking defective equipment and surfacing out-of-service.

5.4 Maintenance schedule

As a minimum, maintenance should be planned and executed according to the maintenance requirements of the manufacturer or provider of the playground equipment. The wear and tear that results from the intensive use of certain playground equipment can make it necessary to increase the frequency of the maintenance tasks. Also, specific local climatic conditions can affect the frequency of maintenance required. It is acknowledged that routine maintenance is the first line of defence against accidents that are the result of faulty equipment or surfaces.

A maintenance schedule should consist of at least of following data:

— location of the playground;

— installed playground equipment;

— frequency for the routine maintenance detailed to each specific playground equipment and surfacing;

— responsible technician supervising the maintenance tasks.

5.5 Record keeping

It is important to keep a record of all maintenance work undertaken throughout the lifetime of the playground. Records should be kept of all actions taken as part of the injury prevention management program. The documents relating to a playground should include:

a) the inspection reports that determine the scope of work for the required maintenance;

b) maintenance instructions from the manufacturer or supplier;

c) operating instructions, if applicable;

d) operator's records of all maintenance work undertaken and a record of all corrective maintenance, e.g. log book;

e) specific design and tender documents

f) outstanding repairs that remain to be completed.

These documents should be readily accessible when required for routine and corrective maintenance.

5.6 Regional and/or cultural differences regarding maintenance

Regional and/or cultural differences regarding maintenance may exist. These differences may relate to the way maintenance is perceived in function of execution and responsibilities. The legal requirements or lack thereof shall also have a bearing on what the minimal expectations are. The lack of legal requirements or local owner/operator standard operating procedures shall never be a reason not to plan and perform maintenance tasks. A lack of maintenance may result in the voiding of warrantees when equipment fails. In the event of injuries, it may result in liability for the owner/operator, all as well as other parties involved in the initial planning, supply, installation, inspection, and those who can be held responsible, including the owner's management and governing boards.

Regional differences can extend to climatic differences across regions where playgrounds are installed. The owner/operator shall be aware of thermal issues related to intense summer heat or extreme cold that can affect the performance of the play components and surfacing. Exposure to UV can also be a consideration that requires the addition of structures to the playspace that also require maintenance. Another environmental factor can be strong local or regional winds that are anticipated because of buildings, landforms or climate and require maintenance of structures intended to reduce the incidence of flying objects within the playspace or evacuation of IAS. These and other factors shall play a role in the maintenance program for the playspace components and ancillary structures.

6 Conclusion

Public playgrounds should be safe but challenging; therefore, inspectors and maintenance technicians have a significant responsibility in carrying out their work. To be able to do so, they need a level of competence which is described in this document. The level of competence is dependent on the playground environment and the difficulty level of the task to be carried out. The competences which are needed to carry out the work can be acquired throughout working experience and/or training programs which are available for inspectors and maintenance technicians around the world. The owner operator has the task to conduct their due diligence in choosing competent inspectors and maintenance technicians in relation to the situation and scope of the work necessary to maintain the owner/operator's standard of care of the playground and playground equipment.

Annex A
(informative)

Introduction to children's play and development

Play is a child's own activity and a form of expression, and it is essential for a child's development and well-being. Children are motivated to play because it is fun and includes features like intrinsic motivation and drive, self-control and mastery of challenges. Play includes movement of the body and body parts and requires bodily control and motor skills.

Playgrounds are specially designed environments with the aim of creating and stimulating children's play and activity. It is therefore important that playgrounds are highly stimulating places, that facilitate play, development and learning among all children, including less abled children and their special needs.

Child development refers to biological, psychological, and emotional changes occur in human beings between birth and the end of adolescence, as the individual progresses from dependency to increasing autonomy. It is a continuous process with a predictable sequence yet having a unique course for every child. It does not progress at the same rate and the preceding types of development affect each stage. Developmental change can occur because of genetically controlled processes known as maturation, or because of environmental factors and learning, but most commonly involves an interaction between the two. It can also occur because of human nature and our ability to learn from our environment.

How a child becomes able to do more complex things as they get older involves development. Development is different than growth. Growth only refers to the child getting bigger in size. Development involves the acquiring and gain of skills such as:

— gross motor skills: the control of movements that include the whole body or large groups of muscles, resulting in large movements and control of large joints;

— fine motor skills: the control of movements that include activity in small or few groups of muscles, resulting in more advanced movements that require a high degree of precision and timing;

— language skills: speaking, using body language and gestures, communicating, and understanding what others say;

— cognitive skills: thinking skills such as learning, understanding, problem solving, reasoning, and remembering;

— social skills: interacting with others, having relationships with family, friends, and teachers, cooperating, and responding to the feelings of others;

— motor development: changes in children's ability to control their body's movements; changes can be quantitative in terms of learning new skills but also qualitative in terms of improving already developed skills;

— motor learning: changes of motor behaviour because of practice and experience; it is a part of motor development, and completely dependent on the interaction between the person and environment.