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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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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.

