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Amusement Park Safety - General Requirements

游乐园安全 基本要求

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Amusement Park Safety - General Requirements

1 Scope

This document specifies the overall requirements, general safety requirements and special safety requirements for the safety of amusement parks.

This document is applicable to the safety management of amusement parks. Tourist attractions may take this as a reference in the implementation.

2 Normative References

The contents of the following documents constitute indispensable clauses of this document through the normative references in this text. In terms of references with a specified date, only versions with a specified date are applicable to this document. In terms of references without a specified date, the latest version (including all the modifications) is applicable to this document.

GB 2893 Safety Colors

GB 2894 Safety Signs and Guideline for the Use

GB 5725 Safety Nets

GB 5768.1 Road Traffic Signs and Markings - Part 1: General

GB 5768.2 Road Traffic Signs and Markings - Part 2: Road Traffic Signs

GB 5768.3 Road Traffic Signs and Markings - Part 3: Road Traffic Markings

GB 8408 Large-scale Amusement Device Safety Code

GB/T 9969 General Principles for Preparation of Instructions for Use of Industrial Products

GB 10631 Safety and Quality for Fireworks

GB 12352 Safety Code for Passengers Aerial Ropeways

GB 13495.1 Fire Safety Signs - Part 1: Signs

GB 15603 Rule for Storage of Chemical Dangers

GB 15630 Requirements for the Placement of Fire Safety Signs

GB/T 16895.13 Low-voltage Electrical Installations - Part 7-701: Requirements for Special Installations or Locations - Locations Containing a Bath of Shower

Critical environmental site refers to the environmental site where people gather for activities in amusement parks.

3.3 Critical Equipment and Facilities

Critical equipment and facilities refer to equipment and facilities that will cause serious personal injury and property loss once an accident occurs.

NOTE: critical equipment and facilities include special equipment, performance equipment and facilities, gas equipment and facilities, electrical equipment and facilities, as well as equipment and facilities for the storage and use of hazardous goods, and emergency response and rescue.

3.4 Critical Operation

Critical operation refers to special equipment operation, special operation, hazardous operation and other operations that directly involve personal safety.

3.5 Hazardous Operation

Hazardous operation refers to an operation that is highly hazardous to the safety of the operator and the others, or the surrounding environment.

NOTE: such as: high altitude, high pressure, confined or limited space, hot fire, ground breaking, hoisting and dismantling, flammable, explosive, highly toxic, radioactive and other operations.

3.6 Large-scale Activity

Large-scale activity refers to a non-routine group activity held by the amusement parks for the public that may cause the gathering of a large number of tourists.

4 Overall Requirements

4.1 The safety management of the amusement parks shall follow the policy of “safety first, prevention first and comprehensive management”; adhere to the scientific development concept of “people-oriented and safe development”; implement the entity responsibility of the enterprise; form a safe working mechanism of “everyone participates and everyone is responsible”.

4.2 The safety management of the amusement parks shall effectively cover the entire region, full time, full range, whole process and all management objects involved in the organization, so as to avoid safety management gaps.

4.3 For the safety quality management of new construction, reconstruction and expansion projects, effective source control shall be carried out from the aspects of design and manufacturing, so as to avoid congenital defects and hidden dangers of the new construction, reconstruction and expansion projects.

4.4 The safety management of the amusement parks shall focus on the key points. In accordance with the specific conditions of the organization, determine the critical environmental site, critical buildings (structures), critical equipment and facilities, critical employees, critical operating activities and operations; identify and control safety risks; investigate and manage hidden dangers of accidents, so as to effectively protect the personal safety of tourists, employees and third-party people.

NOTE 1: the critical buildings (structures) include buildings (structures) for tourist activities, production and living buildings where employees are concentrated, warehouses for hazardous goods, high and low voltage power rooms, critical machine rooms and large-scale outdoor advertising facilities, etc.

NOTE 2: critical employees are those involved in the safety management, operation, service, inspection and testing, monitoring, maintenance, repair and transformation, as well as emergency rescue commands and rescue people for critical environmental site, critical buildings (structures), critical equipment and facilities, critical processes and operations, and major hazard sources.

4.5 A safety management organizational system and a system of rules and regulations shall be established with the implementation of the safety responsibility system as the core. For amusement parks with large scale, diverse business types and a large number of tourist reception, a safety management system that complies with GB/T 42104 and symmetrically controls all safety management elements of the organization shall be established.

4.6 The amusement parks shall, in accordance with the requirements of this document, and GB/T 42104 and GB/T 42100, set up a safety management institution; improve the organizational structure; allocate various types of employees; organize education and training on safety; guarantee the input of personnel, funds, materials and technology, etc.; strengthen the standardized and information-oriented construction; continuously improve safety conditions; ensure the effective operation of the safety management system.

5 General Safety Requirements

5.1 Management Pursuant to Laws and Regulations

5.1.1 The amusement parks shall clarify the laws, regulations and standards for the management of responsible departments or personnel; determine the channels and modes of collection; timely identify and obtain applicable laws, regulations and standards; compile a list of the organization's legal and regulatory documents and continuously update it.

5.1.2 The management of the amusement parks pursuant to laws and regulations includes, but is not limited to the following aspects:

a) For various permits involved in construction and operation (including organization's qualifications, personnel qualifications and specific activity permits, etc.), see Appendix A;

safety risk management and control as the top priority of the safety management of the amusement parks.

5.2.2 The amusement parks shall establish and improve the safety risk identification and control system; clarify and refine the work items, contents and frequency; decompose and implement responsibilities one by one; carry out identification and investigation on all employees, at all times, independently and selectively; achieve normalized, institutionalized and precise management, and satisfy the following requirements:

a) The responsibilities of the management institution and personnel shall be clear; the system shall be clarified;

b) The content and method of safety risk identification and assessment shall be clear;

c) The base number and distribution of safety risks shall be clear (especially major safety risks);

d) The safety risk management and control measures, and the disposal of items shall be clear;

e) The measures and progress of hidden danger management shall be clear.

NOTE: major safety risks in this document refer to Level 1 safety risks and Level 2 safety risks of GB/T 42103.

5.2.3 The safety risk identification and control shall cover the entire area, full time, full range, whole process and all management objects of the amusement parks, as well as normal, abnormal and emergency situations (for example, natural disasters). There shall be no blind spots or dead angles.

5.2.4 The design of critical equipment and facilities shall be prudent and conservative. In combination with the identification, analysis and assessment results of safety risks, various unfavorable factors shall be thoroughly considered; sufficient safety margins shall be retained, or redundancy protection shall be set up, so as to avoid undetectable and unmaintainable single-point failure.

NOTE: single-point failure means when a certain node (or component) fails, it will cause the overall failure.

5.2.5 When carrying out safety risk identification, the safety risk identification shall be continuously conducted on the environmental site, buildings (structures), equipment, facilities and tools, as well as the interaction effect among people participating in the activities, the operating equipment, the environment and buildings (structures); special emphasis shall be placed on the qualitative identification of major safety risks, such as: fire, leakage of hazardous goods, explosion, objects falling from high altitudes and collapse that may cause mas casualties.

5.2.6 In response to major safety risks, system documents of targeted safety management,

protection, operation, daily inspection and patrol, maintenance, regular inspection and testing, and emergency response, shall be formulated. Measures, such as: technical defense, physical defense and human defense, shall be utilized to establish a major safety risk monitoring system or safety monitoring measures. In combination with management demands and operational demands, clear safety signs and risk notifications shall be set up in the front and back fields.

5.2.7 When there are major changes in the environmental site, buildings (structures), equipment and facilities, operating activities, or operating processes and procedures, or changes in the current regulations and standards, the existing safety risks shall be re-identified and re-assessed, so as to further adjust the safety management system program documents, work guidance documents (operating procedures and self-inspection and maintenance procedures) and emergency plans, etc.

5.2.8 Safety risk identification, assessment and control shall be integrated with problems found in safety inspections ad testing, and investigation and rectification of typical accident cases. In addition, in combination with the links, departments and teams that have been prone to and frequently occurring safety problems inherent in the organization for many years, a dual prevention mechanism shall be established for safety risks of hidden danger types.

5.2.9 A major safety risk list ledger shall be established; an electronic distribution map shall be compiled (marking basic information, such as: location distribution, risk category, risk characteristics, responsible person and phone number for management, emergency plans and measures, etc.); hierarchical and classified management, dynamic management and precise monitoring and governance shall be implemented.

5.2.10 The safety risk identification, assessment and control shall comply with the stipulations of GB/T 42103 and relevant documents.

5.3 Emergency Management

5.3.1 The amusement parks shall base on the operating characteristics of the organization, combined with the construction of the safety management system, to carry out the construction of the foundation, support capabilities and actual combat capabilities for emergency management. The emergency management shall comply with the stipulations of GB/T 42100 and relevant standards.

5.3.2 The main person in charge of the amusement parks is the main person in charge of emergency management. The emergency management team and the internal and external emergency rescue teams shall form an emergency organizational network with clear responsibilities, clear division of labor and complete coverage for emergency response.

5.3.3 The emergency plans shall constitute a complete system. The various business activities, management priorities and existing safety risks (especially major safety risks) related to safety in the amusement parks shall be covered by appropriate emergency response projects, specialized emergency plans or comprehensive emergency plans.

5.3.4 The emergency evacuation of large-scale manned equipment and densely populated

occurred shall be prevented.

5.4.2 The investigation, treatment and rectification of safety accidents in the amusement parks shall not be let go, until the cause has been found out, the responsible personnel have been dealt with, the rectification measures have been implemented and all employees have been educated.

5.4.3 The responsibilities of safety accident management shall be clearly defined in relevant safety management documents.

5.4.4 For accidents that are under the jurisdiction of the government pursuant to the law, they shall be timely reported to the relevant departments and with active cooperation in the investigation. For accidents under the jurisdiction of the organization and beyond the jurisdiction of the government, a management mechanism for accident classification and grading, reporting, emergency response, identification, survey, review, processing, investigation, hidden danger rectification, accident ledger and statistical analysis shall be established and improved. Through the classification, survey and analysis, and targeted investigation of typical and recurring personal injury accidents, the cause of the problem and the law of occurrence and development shall be found out, thus, preventive and improvement measures, such as: implementing safety responsibilities, improving system documents, strengthening implementation effect and improving hardware conditions, shall be taken to reduce accidents and relieve the consequences of the accidents.

5.4.5 For accidents under the jurisdiction of the organization, Classification of Human Injury and Disability, and GB 6441 and GB 6721 should be taken as a reference for accident definition and classification.

5.4.6 After a safety accident occurs, the scene of the accident and related evidence shall be properly protected, and the scene shall be guarded. For reasons, such as: rescuing people, preventing the expansion of the accident and dredging the traffic, if it is necessary to move objects at the accident scene, a sign shall be made; important traces and physical evidence on the scene shall be properly preserved by drawing a simplified map of the scene, taking pictures, recording audio and video, and writing records, etc.

5.4.7 The supervision and inspection shall be strengthened, and summary and evaluation shall be conducted from the perspectives of the timeliness of early warning and response to accidents, the effectiveness of emergency response or rescue, the timeliness of accident reporting, the accuracy of investigation and handling, the statistical analysis, rectification and data archiving, so as to timely improve the accident management.

5.4.8 The amusement parks shall timely collect and study the cases of accidents that occurred inside and outside the industry that can be used for reference, and carry out targeted investigation and rectification.

5.5 Safety Inspection

5.5.1 The amusement parks shall step-by-step compact the main responsibility of safety of the business system and the safety supervision responsibility of the safety management institution

(or personnel); establish and improve the working mechanism that integrates the self-inspection and self-correction of the business system with the supervision and inspection of the safety management institution; implement systematic, normalized, standardized and focused safety inspection.

5.5.2 The safety inspection includes safety inspection and patrol, special safety inspection, comprehensive safety inspection, as well as temporary safety inspection for specific situations and time periods. The corresponding types of safety inspection shall be carried out in a timely manner in accordance with the conditions of production and operation.

5.5.3 In the relevant safety management system documents, the scope, objects and key points, content, standards, cycle, process and personnel of the various types of safety inspection at all levels, and the rectification and closure of problems found shall be clearly stipulated.

5.5.4 The content of the safety inspection includes, but is not limited to the following aspects:

a) Inspect the compliance with laws and regulations. During the inspection, attention shall be paid to whether the relevant legal compliance certification documents comply with the requirements, whether the equipment and facilities supervised by the government and the statutory employees satisfy the administrative license and qualification requirements;

b) Whether daily inspection, maintenance and regular inspection and testing are carried out on the buildings (structures), equipment and facilities as required; randomly inspect the quality of the actual work;

c) Safety management and control of personnel on duty with certificates and important operation process;

d) The construction of fundamental safety work, with an emphasis on the sound implementation of safety management system documents and investment in safety hardware conditions;

e) Organizations at all levels (departments and teams) shall grasp the safety risk base number, the implementation of management and control measures, and the investigation and governance of hidden dangers;

f) The safety capability construction and safety management and control of grass-roots teams, as well as important employees' capabilities of correct operation, risk identification, management and control, abnormality finding and handling and on-site emergency response, etc.;

g) Whether the organizations at all levels and their responsible persons carry out safety management activities and institutionalized on-site safety inspection and patrol in accordance with the safety management system and safety inspection documents, as well as investigation and rectification of typical problems or recurring problems found in safety inspection;

f) Approval of daily maximum carrying capacity and instantaneous maximum carrying capacity of people in the park and venue;

g) Identification, control and flow guidance of congestion points;

h) Safety management and control of performance activities (especially densely populated venues);

i) Safety notification and behavior (especially during equipment-riding, self-operation, interactive behavior, wading, commercial diving and diving performances, etc.) management of tourists;

j) Emergency preparedness, drills, emergency response and disposal;

k) Management of park broadcasting, safety signs and emergency evacuation facilities;

l) Management of on-duty operation, authorization of on-duty personnel and on-site leadership during critical periods;

m) Temporary park opening and closing management;

n) Identification, management and control of safety risks in operation;

o) Review and approval of new operation projects and activity plans;

NOTE: new operation projects include, but are not limited to: newly added routine operation projects, seasonal or special operation projects (such as: fire-related and water-related projects, haunted houses and escape rooms, etc.) and non-routine operating activities (large-scale activities, short-term or one-time operating activities). The daily maximum carrying capacity refers to the maximum number of tourists that an amusement park can accommodate during its daily opening hours under normal weather and operating conditions, and on the premise of ensured safety. The instantaneous maximum carrying capacity refers to the maximum number of tourists that an amusement park can accommodate at a certain time point on the premise of ensured safety.

p) Operational stress test;

q) Operational summary and improvement;

r) Operational emergency management;

s) Review and evaluation of suitability and safety of operational hardware conditions.

6.1.2 The daily maximum carrying capacity, the instantaneous maximum carrying capacity and the number of people allowed to be accommodated in densely populated venues of the amusement parks shall be clearly defined; congestion and crowded points shall be defined. In addition, in the operating activities, through big data collection and analysis means, for example, ticket reservation system or other data information, implement the early-stage management and

control, passenger flow monitoring and dredging in the process.

6.1.3 On ticketing platforms, and in the parks, venues and queuing areas, through tourist guidebooks, notice billboards for tourists, as well as broadcasting, videos and warning signs, the tourists shall be informed of the tourist taboos and safety precautions. For large-scale amusement facilities or amusement projects with a high risk level, the service personnel shall also remind tourists to confirm whether they reach the riding conditions and thoroughly understand the safety precautions before the projects are actuated.

6.1.4 In combination with the operating characteristics of the amusement parks, on-duty safety personnel at all levels shall be appointed or designated; the post requirements, on-duty responsibilities and authorities, on-duty time period and duty transfer of on-duty safety personnel, as well as the procedures for problems found or safety accidents, etc. shall be clarified. For national statutory holidays, large-scale activities or special operating activities, the relevant person in charge of the amusement parks shall also be specified as the primary on-duty personnel; Role A and Role B shall be clarified. The on-duty safety personnel shall be familiar with their responsibilities and be competent for the safety duty that they undertake to pass the assessment.

6.1.5 The amusement parks shall set up relevant measures (or facilities), such as: monitoring, safety signs, dredging guidance and safety protection for critical equipment and facilities, buildings (structures) and environmental site involved in the operating activities; carry out targeted inspections and patrols; formulate corresponding passenger flow dredging guidance and emergency plans.

6.1.6 For the safety management and control, and evacuation of the peak passenger flow period (especially closed night activities) and the instantaneous maximum passenger flow in the area, the following work shall be properly completed:

a) For venues where tourists may stay and conduct activities for a long time during the peak passenger flow period, reasonably divide the area, delineate the people activity grid and stipulate the maximum number of people in the grid;

b) Thoroughly consider the risks caused by the superposition of passenger flows when tourists enter and leave the venue, evenly distribute the hot spots, such as: performances, hot facilities, temporary performances, star performances and float parades, etc.; avoid placing multiple hot spots in the same area;

c) Maintain the same passenger flow, constant speed and one-way flow during peak passenger flow hours; prevent the passenger flows from rushing towards each other;

d) In accordance with the condition of the passenger flow, adjust the tourist activity routes; take measures, such as: controlling gates, queuing areas and buffer zones, temporarily changing roads, or closing bridges, narrow roads, hot venues and facilities, stair passengers, kiosks and dining spots that may cause congestion and stampede accidents;

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