

ARTICLE 4.  
AMUSEMENT RIDES SAFETY CODE

(Statutory Authority: 1976 Code Chapter 18 of title 41, as amended.)

(Statutory Authority: 1976 Code Section 41-18-120)

**71-4000.** Purpose and Definitions.

1. Chapter 18 of Title 41, S.C. Code of Laws, 1976 (as amended) provides that the Commissioner of Labor promulgate regulations to guard against personal injuries in the assembly, disassembly, and use of amusement devices at carnivals, fairs, and amusement parks and to assure to any injured person the possibility of financial recovery for such injuries. It is the purpose of these regulations to set minimum acceptable safety standards for design, construction, operation and inspection of such amusement devices.

2. All definitions found in 41-18-40 apply to these regulations.

A. Accepted engineering practice: that which conforms to accepted principles, tests, or standards of nationally recognized technical or scientific authorities.

B. Operator: the person having direct control of the starting, stopping, or speed of an amusement device.

C. NDT: Non-Destructive Testing: Assorted testing methods used to disclose latent defects during which test the physical or chemical state of the material is not altered.

D. Imminent Danger: A condition which exists due to a mechanical, electrical, structural, design, or other defect which presents an excessive risk of serious injury to passengers, bystanders, operators, or attendants.

E. Operational Tests: Measurements of safety mechanisms which do not come into play during routine operation.

**71-4100.** Maintenance of On-Site Information.

All owners shall maintain certain physical information at the site of operation of all amusement devices in South Carolina.

A. Name Plate-A unique identifying name plate in English shall be permanently affixed to each amusement device specifying location of manufacturer by city, state, and country. This name plate shall also have the serial number, device model number, and date of manufacture. In addition, a state ID number tag supplied by the Department shall be permanently affixed to the device.

B. Static and Dynamic Information-Each owner shall maintain at the site of operation of the amusement device the following information: height, width, diameter, and weight when in a non-operational state with no passengers and in a fully operational state with passengers.

C. Speed-When the proper speed is essential to the operation of the device, each owner shall maintain at the site of operation of the amusement device the following information:

- (1) Maximum revolutions per minute, or
- (2) Maximum feet per second or miles per hour.

D. Direction of Travel-When the proper direction of travel is essential to the design operation of the device, the manufacturer shall designate the direction of travel, including the reference point for this designation, and the owner will maintain this information at the site of operation of the amusement device.

E. Power Requirements-Each owner will maintain at the site of operation of the amusement device the following information:

- (1) Electrical-Total electrical power required to operate the ride or device designated in watts, volts, and amperes, including minimum and maximum voltage limits.
- (2) Mechanical-The minimum horsepower necessary to operate the device safely.

F. Passenger Capacity-Each owner shall maintain at the site of operation of the device the following specifications of the manufacturer:

- (1) Maximum total passenger weight; and/or
- (2) Maximum number of passengers by carrier unit and device total.

G. Recommended Balance of Passenger Loading or Unloading-When passenger distribution is essential to the proper operation of the device, the appropriate loading and unloading procedure with respect to weight distribution shall be maintained at the site of operation.

H. Recommended Passenger Restrictions-Where applicable, any passenger limitations such as, but not limited to height, weight, passenger placement, physical condition, or other appropriate restrictions, shall be maintained in full public view at the site of operation. The operator shall have the right to refuse access to a device to any person where the operator believes that access may jeopardize the safety of the rider or of any other person.

I. Environmental Restrictions-Specifications for operational restrictions relating to environmental conditions such as, but not limited to wind, rain, corrosive atmosphere,

and extreme heat or cold, shall be maintained at the site of operation of the device by the owner.

J. Fastener Schedule-A manufacturer's issued schedule for the correct or better grade, torque, and placement of all critical fasteners used in the assembly or erection, or both, of the amusement device shall be maintained by the owner at the site of operation of the device.

K. Numbering-All passenger-carrying compartments shall be numbered without duplication.

L. Evacuation-An emergency evacuation plan shall be maintained at the site of operation of any amusement device where passengers may be more than five feet above the ground.

**71-4101.** Repealed

**71-4200.** Operation Procedures for Amusement Devices. Owners/Operator's Responsibility.

1. Each owner of an amusement device shall read and become familiar with the contents of the manufacturer's recommended operating instructions. Each owner shall prepare an operating fact sheet. This fact sheet shall be provided to each device operator and attendant of the amusement device. The owner's fact sheet (on a device-by-device basis) shall include but not be limited to:

A. Specific device operation policies and procedures with pertinent information from the manufacturer's instructions;

B. Description of the device operation;

C. Duties of the specific assigned position of the device operator or attendant;

D. General safety procedures;

E. Additional recommendations of the owner/operator; and

F. Specific emergency procedures in the event of an abnormal condition or an interruption of service.

2. The owner shall provide training and instructions for each operator and attendant of an amusement device. This training shall include, but not be limited to the following, where applicable:

A. Instructions on device operating procedures;

B. Instructions on specific duties of the assigned position;

- C. Instructions on general safety procedures;
- D. Instructions on emergency procedures;
- E. Demonstration of the physical operation of the device;
- F. Supervised observation of the device operator's physical operation of the device; and
- G. Additional instructions deemed necessary by the owner.

3. The owner will enforce compliance with the operating fact sheet and maintain operation within limits described by the information required by 71-4100.

4. Every amusement device shall be maintained, operated, assembled and disassembled to be free from recognized hazards or defects which may cause serious injury.

**71-4300. Operational Testing.**

1. The owner of a device shall use manufacturer's operational tests, along with maximum intervals for these tests to be performed, to determine whether a safety mechanism is operating within operational limits as recommended by the manufacturer. If manufacturer's guidelines for operational testing are not available, the owner shall use operational tests based on available guidelines for devices similar in design and function.

2. Non-Destructive Testing (NDT): NDT shall be performed in conformance with manufacturer's specifications. In addition, any hidden shaft or structural member in an amusement device may be required to undergo NDT after written notice to the owner is given by the Department. The notice will specify a date by which NDT shall be completed.

3. The owner of a device shall conduct the tests developed under Section 71-4300 (1) and (2) at regular intervals and shall record the results of operational tests and shall provide the results to the Commissioner upon request.

**71-4400. Maintenance Procedures for Amusement Devices.**

1. Each owner of an amusement device shall read and become familiar with the contents of the manufacturer's maintenance instructions and specifications. Based on the manufacturer's recommendations, each owner shall develop and implement a program of maintenance and inspections providing for the duties and responsibilities necessary in the care of each amusement device. This program of maintenance shall include a checklist provided to each person performing the regularly scheduled maintenance on each device. The owner's checklist (on a device-by-device basis) shall include but not be limited to the following:

- A. A description of preventive maintenance assignments to be performed with frequency;

B. A description of inspections to be performed with frequency;

C. Special safety instructions, where applicable; and

D. Any additional recommendations of the owner.

2. The owner of the amusement device shall provide training for each person performing the regularly scheduled maintenance on the device, pertaining to their assigned duties. This training shall include, but not be limited to the following:

A. Instructions on inspection and preventive maintenance procedures;

B. Instructions on specific duties of the assigned position;

C. Instructions on general safety procedures;

D. Demonstrations of the physical performance of the assigned regularly scheduled duties and inspections;

E. Supervised observation of the maintenance person's physical performance of his assigned regularly scheduled duties and inspections; and

F. Additional instructions deemed necessary by the owner.

3. Prior to carrying passengers, the owner shall conduct or cause to be conducted a daily pre-opening inspection to insure proper operation of the device. Where the manufacturer provides relevant instructions for a daily inspection, the owner may incorporate these instructions into his inspection procedure. Where the manufacturer does not provide such instructions, the owner may incorporate relevant instructions for a daily inspection based on instructions from other amusement devices similar in design and function. The owner shall maintain a record of the daily inspection, signed and dated by the person performing it. These records shall be kept for a period of no less than three (3) years. The inspection program shall include, but not be limited to the following:

A. Inspection of all passenger-carrying equipment, including restraint equipment and latches;

B. Visual inspection of entrances, exits, stairways, and ramps;

C. Visual inspection of grounds around and/or inside of the device;

D. Functional testing of all communication equipment necessary for the operation of the device;

E. Inspection or testing of all automatic and manual safety equipment, including flotation and tethering equipment where applicable;

F. Inspection or testing of brakes, including service brakes, emergency brakes, parking brakes, and back stops;

G. Visual inspection of any fencing, guarding and barricades;

H. Visual inspection of the device structure;

I. Visual inspection of electrical equipment and wiring;

J. Visual inspection of accessible pins and fasteners;

K. Visual inspection of blocking and shoring; and

L. The device shall be operated for a minimum of two complete operating cycles. A complete cycle shall include operation of all passenger-carrying equipment.

4. Following any unscheduled cessation of operation necessitated by malfunction, adjustment, environmental conditions, mechanical, electrical, operational or structural modification, the device shall be unloaded and the device, or the specifically affected element, shall be appropriately inspected and operated without passengers to determine that the cause for cessation of operation has been corrected and does not create an operational problem.

5. If an inspector finds that the amusement device presents an imminent danger, he will notify in writing the amusement device operator, owner, and sponsor of the fair or carnival or owner of the land upon which the fair or carnival is located. If the device is not immediately removed from service, the inspector will file a report of the imminent danger with the Commissioner of Labor. A temporary or permanent restraining order will be sought where appropriate.

6. The owner or lessee of any amusement device which, during the course of its operation, is involved in an accident which results in a serious injury shall report the injury to the Commissioner before the end of the next business day. The report will include the names and addresses of the injured parties, the hospital where treatment was rendered, type of injuries, type of device involved, owner, and any other information pertaining to the events leading up to, the nature of, and the outcome of the accident as well as the status of the device involved in the accident.

7. Any part which has caused, contributed to, or has been damaged during a catastrophic accident shall not be removed from a device or destroyed until inspected by the Department.

**71-4450. Miscellaneous Safety Requirements For Amusement Rides.**

1. Electrical Systems.

A. The following wiring systems are acceptable:

(1) Three Phase System with an equipment grounding conductor grounded at the power source that is not bonded to a neutral conductor (except at the source) and is constructed in accordance with the 1990 National Electrical Code. Compliance with the requirements of any later edition of the National Electrical Code will be accepted by the Director as compliance with the 1990 edition.

(2) Single Phase System with an equipment grounding conductor grounded at the power source that is not bonded to a neutral conductor (except at the source) and is constructed in accordance with the 1990 National Electrical Code. Compliance with the requirements of any later edition of the National Electrical Code will be accepted by the Director as compliance with the 1990 edition.

B. Ground fault interruption circuitry must be provided for wiring systems of 240 volts or less, 30 amps or less, for amusement devices in which water is a major medium. Control circuits 50 volts or less are exempt from this requirement. Permanent area lighting not attached to the amusement device or accessible by the public are exempt from this requirement when wired in accordance with the 1990 National Electrical Code. Compliance with the requirements of any later edition of the National Electrical Code will be accepted by the Director as compliance with the 1990 edition.

C. All electrical equipment and devices are to be guarded against access by unauthorized persons. All cable must be routed to reduce a tripping hazard.

D. Dark Rides

(1) The track or bus supplying voltage to the individual cars shall be maintained at 50 volts or less potential.

(2) All areas shall have adequate emergency lighting to permit safe exiting in the event of power failure. This lighting must come on automatically in the event of power failure.

(3) All areas shall have lighting controlled by a switch at the operating control station, in addition to emergency lights. This lighting shall be adequate to allow safe exiting.

(4) All exits shall have illuminated exit signs mounted above the exit and wired to automatically be energized in the event of power failure or in the event that the area lighting control switch at the operating station is activated.

E. All fluorescent lights shall have sleeving and be secured in place.

F. Each electrically operated amusement device shall be provided with a lockable externally operated protected disconnect. This disconnect shall remove all power from the amusement device, and shall be clearly labeled.

## 2. Structural.

A. All devices shall be guarded against access by non-authorized personnel into the area of operation.

B. One AB&C fire extinguisher of at least 10 lb. capacity shall be placed on all generator units of greater than 7.5 kilowatts. One AB&C fire extinguisher of at least 10 lb. capacity shall be provided for all gasoline powered amusement devices with engines greater than 5 HP and all remote fuel storage areas of 10 gallons or more. The fire extinguisher must be readily accessible and in good working order.

C. One AB&C fire extinguisher of at least 5 lb. capacity shall be placed on all generators less than 7.5 kilowatts. One AB&C fire extinguisher of at least 5 lb. capacity shall be provided for all gasoline-powered amusement devices with engines 5 HP or less and all remote fuel storage areas not exceeding 10 gallons. The fire extinguisher must be readily accessible and in good working order.

D. There shall be a minimum of 6 feet between fences when the fence is attached to a portion of a device containing an electrical device. Where the electrical device is 240 volts or less, 30 amps or less, and equipped with GFI circuitry, the minimum distance need not be maintained. Common fences are acceptable under other conditions.

E. Dark Rides--There shall be a minimum of one (1) smoke and fire detector per 500 square foot area and a five (5) lb. ABC fire extinguisher shall be located at all entrances and exits and at any operator station not located directly at an entrance or exit.

### F. Blocking Requirements.

(1) The footing, blocking, or anchorage for amusement devices shall be sound, rigid, and capable of carrying the maximum intended load without settling or displacement. Unstable objects such as barrels, boxes, loose brick, or concrete blocks, shall not be used to support amusement devices.

(2) Blocking of an amusement device shall be sized so that the bearing surface of the blocking is equal to or greater than the bearing surface of the support pad of the amusement device.

(3) The height of the blocking shall not exceed the total width of the base of the blocks being used.

G. All amusement devices, generators and power distribution centers must be accessible to emergency vehicles.

H. All amusement devices must maintain a minimum 10' clearance from any overhead power lines in both the static and dynamic states.

I. Internal combustion and electrical power sources, and power transmitting elements, shall be of adequate type, design and capacity to handle the design load.

J. Fuel tanks should be of adequate capacity to permit uninterrupted operation during normal operating hours. Where it is impossible to provide tanks of proper capacity for a complete day, the engine shall be shut down and the amusement device unloaded or evacuated during the refueling procedure. Under no circumstances shall the fuel supply be replenished while the engines are running.

K. An enclosed area in which an internal combustion engine is operated shall be ventilated. Exhaust fumes from the engine shall be discharged outside the area. The equipment shall be properly grounded.

L. Internal combustion power sources shall be located in a manner permitting proper maintenance and shall be protected either by guards, fencing or enclosures.

M. All amusement grounds shall be free from recognized hazards which may cause injury.

### 3. Ride Operation.

A. The owner shall not allow any device operator under the influence of controlled drugs or alcohol to operate or assist in the operation of the device.

B. When requested, the operator must halt a device and allow passengers desiring to disembark to do so.

C. The owner shall have no fewer than one (1) operator per device. Additional assistance may be required as necessary.

D. The owner shall not allow an operator to leave the controls during operation of the device and shall not allow assistants to leave their assigned stations during operation of the device.

E. All buttons and switches on operating control stations shall be properly labeled in English as to their functions, and all emergency stopping devices shall be colored red.

F. All operators must be able to speak and comprehend the English Language sufficiently to communicate with patrons, follow instructions and comprehend the operating fact sheet.

### 4. Mechanical.

A. An amusement device capable of exceeding its maximum safe operating speed shall be provided with a speed limiting device.

B. Amusement rides shall continue to meet manufacturing specifications including all safety bulletins.

**71-4475. Additional Rules for Individual Amusement Devices.**

1. Chair lifts and Trams shall be designed and maintained per ANSI B77.1 1982 and all supplements thereto. Compliance with the requirements of any later edition published by the American National Standards Institute shall be accepted by the Commissioner as compliance with this section.

2. Go Carts.

A. All wheel wells must be enclosed, except for Grand Prix style cars which race individually.

B. All tracks must have a liner rail, except for Grand Prix style cars which race individually.

C. Helmets must be provided for all patrons desiring to use them.

**71-4500. Insurance Bond, or other Security.**

1. Before any permit can be issued, the owner must file with and have accepted by the Commissioner an approved Certificate of Insurance against liability for injury to persons arising out of the use of an amusement device, to be in an amount not less than that specified by South Carolina Code of Laws, 1976, Title 41, Chapter 18, as amended.

2. Evidence of insurance may be:

A. A policy of insurance procured from one or more insurers acceptable to the Chief Insurance Commissioner of South Carolina as either:

(1) Licensed to transact insurance in South Carolina;

(2) Approved as a non-admitted surplus lines carrier for risks located in this State;

B. Cash or other security acceptable to the Commissioner of Labor.

3. The Commissioner shall not accept any policy of insurance unless it shall obligate the insurer to give written notice to the Commissioner thirty (30) days before any proposed cancellation, suspension or non-renewal of the policy. The Commissioner shall make available upon request an approved endorsement form.

**71-4600. Permit Required.**

1. Before beginning operation of any amusement device within South Carolina, the owner shall have posted on the amusement device a valid permit to operate issued by the Commissioner. A permit to operate is valid for a period of one calendar year terminating on December 31 of the year issued.

2. All new amusement devices permitted within South Carolina beginning July 1, 1993, shall meet the requirements of the 1992 edition of ASTM Standards on Amusement Rides and Devices, and the South Carolina Amusement Ride Code and any later editions; or be certified by a licensed architect or professional engineer.

3. A complete set of manuals for assembly, maintenance and operation of the device shall be maintained by the owner. All manuals shall be in English. If manufacturer's manuals or guidelines are not available, the owner shall use manuals or guidelines for devices similar in design and function.

**71-4610. Permit Application Requirements.**

1. Each application for a permit shall be in writing and received by the Commissioner no less than ten (10) days before the first intended date of use.

2. Each permit application shall include the following information:

A. Name of the owner of the amusement device;

B. The address of the owner;

C. The name of the state under whose laws the owner is incorporated (if incorporated);

D. The model number and serial number of the amusement device and name and address of manufacturer;

E. Acceptable evidence of the liability insurance policy, bond, or other security covering the amusement device. The Commissioner may, at his discretion, require submission of the complete copy of insurance; and

F. A notarized inspection report by a special inspector or in the alternative, a request for inspection by the Department.

3. In addition, each application for a permit for a temporary device shall include the following information:

A. Planned schedule of appearances in South Carolina, including dates and locations; and

B. Name of sponsor or land owner at each location where use is planned.

4. Owners of temporary amusement devices shall supply the Department with the local phone number on each site of operation, before the end of the same business day that the number is assigned by the telephone company, if a telephone is located at such site.

**71-4700. Fee Schedule.**

1.A. Upon application for a permit with a request for inspection by the South Carolina Department of Labor, an annual fee shall be charged at the rate of:

kiddie device \$ 50.00

major/spectacular devices 100.00

mobile/fixed roller coasters 250.00

B. Fees under 71-4700 include one permit inspection. Any return inspection resulting from the owner's failure to comply, will be charged at a rate of \$75.00 per hour in addition to the annual fee, including travel time.

2. Upon application for a permit, with the application accompanied by a notarized inspection report by an approved special inspector, an annual permit fee shall be charged at the rate of \$100.00 for the first device covered by any permit application. Additional devices with a common owner and insurance coverage shall be charged a fee of \$50.00 per device.

**71-4800. Qualifications of Approved Special Inspectors.**

1. A special inspector shall have the following qualifications:

A.(1) At least five (5) years experience in amusement device maintenance and safety and completion of approved courses in materials inspection and testing and in fasteners or in the alternative.

(2) A four-year college degree in engineering or architecture with a minimum of twelve (12) semester hours of course work in the area of mechanics and strength of materials.

B. Evidence of successful completion of an approved Rides Safety Inspection course within the previous two (2) calendar years.

2. Each applicant for approval as a special inspector shall submit with his annual application evidence of insurance against errors and omissions in an amount of no less than \$500,000 per occurrence, procured from one or more insurers licensed to transact insurance in South Carolina or approved as a non-admitted surplus lines carrier for risks located in this State. Each policy, by its original terms or an endorsement, shall obligate the insurer that it will not cancel, suspend, or nonrenew the policy without thirty (30) days written notice of the proposed cancellation, suspension, or nonrenewal and a

complete report of reasons for the cancellation, suspension, or nonrenewal being given to the Commissioner. In the event the liability insurance is cancelled, suspended, or nonrenewed, the insurer shall give immediate notice to the Commissioner.

3. Each applicant for approval as a special inspector shall submit with his annual application a license fee in the amount of \$200.00.

4. Applications for approval as a special inspector shall be made annually on a form to be provided by the Commissioner.

**71-4910. Procedure for Hearing Contested Notices of Non-Compliance and Assessments of Penalty.**

1. Any owner to whom a Notice of Non-Compliance or Notice of Proposed Penalty has been issued may serve a Notice of Protest upon the Commissioner within thirty (30) days of the receipt by the owner of the Notice of Non-Compliance or of the Notice of Proposed Penalty.

2. Notice of Hearing

A. Service: Upon receipt of a Notice of Protest or any Notice of Non-Compliance by any owner of any amusement device, the Commissioner shall serve notice of a hearing to be held to determine the issues.

B. Contests: The notice of hearing shall include:

(1) Time, place, and nature of the hearing. The time shall be at least thirty (30) days from the service of notice of hearing unless the owner shall ask in writing for a shorter time;

(2) A short statement of the issues involved; and

(3) Designation of the representative of the Commissioner who shall conduct the hearing as Hearing Examiner.

3. Hearing Procedure

A. The Hearing Examiner will explain briefly the purpose and nature of the hearing, will ascertain who will present the case for each of the parties, and will hear all preliminary matters.

B. All persons who give testimony shall be sworn.

C. A party shall be entitled to present all relevant facts by oral or documentary evidence or by affidavit if the parties so agree.

D. Opposing parties shall have the right to cross-examine any witness whose testimony is introduced.

E. A business entity which owns an amusement device may be represented at any hearing by an attorney licensed to practice in South Carolina, or by an officer or employee of the entity.

4. Within a reasonable time after the Hearing Examiner has heard all evidence and considered any written briefs or memoranda submitted, he shall make a written recommendation to the Commissioner. The Commissioner shall then make his final disposition of the proceedings and shall serve it upon all parties.

5. The Commissioner of Labor shall maintain a record of the proceedings which shall include testimony and exhibits.

**71-4920. Procedure for Applications for Variance.**

1. Any amusement device owner may apply to the Commissioner of Labor for a variance, either temporary or permanent, from any rule or regulation under this article.

2. Such variance shall be granted at the discretion of the Commissioner if the owner establishes by sufficient evidence that:

A. He is unable to comply with a rule or regulation because of unavailability of professional or technical personnel or data or of materials and equipment needed to come into compliance with the rule or regulation; and

B. He is taking effective alternative steps to safeguard the public against the hazard covered by the rule or regulation.

3. A variance application shall include:

A. The name and address of the petitioner;

B. Identifying information concerning the amusement device for which the variance is sought;

C. A specification of the standard or portion thereof from which the petitioner seeks a variance;

D. A representative by the petitioner, supported by representations from qualified persons having first-hand knowledge of the facts represented, that he is unable to comply with the standards or portion thereof and detailed statement of the reasons thereof;

E. A statement of the steps the petitioner has taken or will take, with specific dates where appropriate, to protect the public against the hazard covered by the standard; and,

F. Where a temporary variance is sought, a statement of the time required to achieve compliance with the standard, not to exceed two (2) years.

**71-4950.** [Information to be Made Available to Commissioner.]

The owner shall be responsible for maintaining and making available to the Commissioner all information required by the Amusement Ride Safety Code and these regulations. This information shall be made available to the Commissioner upon request.