

## INTRODUCTION

### Purpose and Structure

The legislature, by section 35.93 and chapter 227, Wis. Stats., 1955, directed the publication of the rules of administrative agencies having rule-making authority in a loose-leaf, continual revision system known as the WISCONSIN ADMINISTRATIVE CODE. The code is kept current by means of new and replacement pages. The pages are issued monthly, together with notices of hearings on proposed rules, emergency rules, new rules, instructions for inserting new material, and other pertinent information. This monthly service is called the WISCONSIN ADMINISTRATIVE REGISTER, and comes to the subscriber after the 25th of each month.

### Availability

The complete code and the upkeep service are distributed to the county law libraries; to the libraries of the University of Wisconsin Law School and Marquette University Law School; to the State Historical Society; to the Legislative Reference Bureau and to the State Law Library, and to certain designated public libraries throughout the state.

The sale and distribution of the code and of its parts is handled by Department of Administration, Document Sales and Distribution, 202 S. Thornton Ave., Madison, Wisconsin 53702.

### History Notes

Each page of the code as it was originally filed and printed pursuant to the 1955 legislation, is dated "1-2-56". A rule which is amended or created subsequent to the original printing date is followed by a history note indicating the date and number of the REGISTER in which it was published and the date on which the amendment or the rule became effective. The absence of a history note at the end of a section indicates that the rule has remained unchanged since the original printing in 1956. The date line at the bottom of the page indicates the month in which the page was released.

In some instances an *entire* code has been repealed and recreated subsequent to the original printing date. When this occurs a history note has been placed at the beginning of the chapter to contain this information. A separate history note appears after each section indicating the date when the revision became effective.

# Wisconsin Administrative Code

## Rules of

## DEPARTMENT OF INDUSTRY, LABOR AND HUMAN RELATIONS

## AMUSEMENT RIDES AND DEVICES

Cite the rules in this Code as

(for example)

Wis. Adm. Code section Ind 47.01

DEPARTMENT OF INDUSTRY, LABOR  
AND HUMAN RELATIONS

201 East Washington Ave.

Madison, Wisconsin 53702

## Chapter Ind 47

## AMUSEMENT RIDES AND DEVICES

Ind 47.01	Scope	Ind 47.20	Access and egress to and from amusement devices, rides and temporary structures
Ind 47.02	Definitions	Ind 47.21	Exits
Ind 47.03	Registration	Ind 47.25	Design and construction of temporary structures
Ind 47.04	Classification of rides for type of inspections and tests required	Ind 47.30	Control of operations
Ind 47.05	Design and construction	Ind 47.31	Wind and storm hazards
Ind 47.06	Emergency brakes and anti-rollback devices	Ind 47.32	Signal systems
Ind 47.07	Speed-limiting devices required	Ind 47.33	Public protection
Ind 47.08	Passenger-carrying devices	Ind 47.34	Guarding of machinery
Ind 47.09	Periodic inspections and operational tests	Ind 47.35	Air compressors and equipment
Ind 47.10	Testing of rides assigned to class 4	Ind 47.36	Fire prevention and protection
Ind 47.11	Test for serviceability	Ind 47.37	Cleanliness
Ind 47.13	Maintenance and record-keeping	Ind 47.50	Electrical
Ind 47.15	Assembly and disassembly	Ind 47.51	Lighting of exits and passageways
Ind 47.16	Location notices for non-permanent amusements	Ind 47.52	Lighting of work area
		Ind 47.60	Accident reporting
		Ind 47.61	Retroactivity

**Ind 47.01 Scope.** (1) The intent of this code is to set forth minimum standards for design, construction, operation, repair, inspections, assembly, disassembly and use of amusement rides and devices, permanent and/or temporary structures at carnivals, fairs and other places of amusements for the safety of employes and frequenters.

(a) *Exclusions.* All nonmechanized playground equipment such as swings, seesaws, stationary spring mounted animal features, rider propelled merry-go-rounds, climbers, slides, swinging gates and physical fitness devices are not covered by this code except where admission is charged for usage or a fee is charged to areas where such equipment is located.

**History:** Cr. Register, July, 1967, No. 139, eff. 8-1-67.

**Ind 47.02 Definitions.** (1) **AMUSEMENT AREA.** An amusement area means the area occupied by an enterprise that is principally devoted to offering amusement, exhibits or entertainment to the public. Amusement areas may be located at permanent sites, such as amusement parks, or may be moved from site to site, such as carnivals. All structures that receive electrical power from an independent source, which also serves amusement rides and attractions, are included within the amusement area.

(2) **AMUSEMENT ATTRACTION.** Amusement attraction means any game of skill, show, exhibition or non-amusement ride entertainment device.

**Note:** Non-amusement ride entertainment devices include shows, joints, exhibitions, pillow bounces, giant slides, walk-throughs without moving parts such as glass houses, and similar devices.



(3) **AMUSEMENT DEVICES.** Amusement devices means any object in or associated with an amusement area that could be expected to contribute to injury.

**Note:** Amusement devices include rides, attractions, concession stands, light towers, power-generating and distributing systems, decorations, signs, speaker systems, and similar devices.

(4) **AMUSEMENT RIDES.** Amusement rides means devices that carry frequenters in unusual, entertaining or thrilling modes of motion and vehicles providing entertainment or transportation to, from and within an amusement area.

**Note:** Amusement rides include rider-powered and power-driven thrill rides, mild rides and ride-throughs, walk-throughs with moving parts, and animal rides. Vehicles include parking lot trams, old fire engines, stage coaches, trackless trains and similar vehicles.

(5) **APPROVED.** Approved means approved by the department.

(6) **AUTHORIZED PERSONS.** Authorized persons are persons experienced and instructed in the work to be performed and who have been given the responsibility to perform their duties by the owner/operator.

(7) **CONCESSION STAND.** A concession stand is a structure associated with an amusement area in which food and other goods are sold.

(8) **CRITICAL PARTS.** Critical parts are those parts of amusements rides whose failure could result in serious personal injury.

(9) **DEPARTMENT.** Department means the department of industry, labor and human relations.

(10) **FAIR.** A fair means an enterprise principally devoted to the exhibition of the products of agriculture or industry and often includes amusement rides and attractions.

(11) **MODIFIED RIDE.** Modified ride means an amusement ride whose structure, drive system, storage during transportation, method of erection, or other items affecting the safety of the ride have been changed, except changes recommended by a manufacturer of class 1, 2 or 3 rides.

(12) **OWNER/OPERATOR.** Owner/operator means the person holding legal title to the amusement ride or attraction, the designated representative, lessee or person responsible for the operation of the ride or attraction.

(13) **PASSENGER SPACE.** Passenger space means the area, space, seat, tub, chair, car, cage or other device where the customer sits, stands, walks or otherwise occupies while frequenting an amusement ride or attraction.

(14) **PROFESSIONAL ENGINEER.** A professional engineer is an engineer who is registered in the state of Wisconsin.

(15) **PROPERLY MAINTAINED.** Properly maintained means assembling, disassembling, transporting and operating amusement rides and devices in accordance with the manufacturer's recommendations, nationally recognized standards, and recognized practice. Properly maintained also means lubricating, greasing, oiling, testing and repairing of parts at specified time intervals in accordance with the recommended practices and procedures.

(16) **SERVICEABILITY.** Serviceability means that a ride has been erected, maintained and repaired in accordance with recognized practice, and critical parts are not weakened by abnormal wear or cracks, improper repair, or other conditions.

**History:** Cr. Register, July, 1967, No. 139, eff. 8-1-67; r. and recr. Register, June, 1978, No. 270, eff. 7-1-78.

**Ind 47.03 Registration.** (1) **SCOPE.** All amusement rides shall be registered with the department each calendar year. The fee, as set forth in Wis. Adm. Code chapter Ind 69, shall be paid and the rides shall be registered prior to being opened to the public.

(2) **INFORMATION REQUIRED.** The following information for registration shall be provided on form SBD-5292, which will be provided by the department:

(a) Name and address of owner, operator or lessee if different from owner.

(b) Descriptive name, model and serial number of the ride, and name and address of manufacturer.

(c) Description of modifications and name and address of modifier.

(d) Route, i.e., places and dates on which the ride will be operated in the state. If the itinerary is incomplete or changes occur, the department shall be notified prior to operation on the adjusted route.

(e) Proof of worker's compensation coverage and ability to pay liability damages arising out of the handling, maintenance or use of amusement devices, such as evidence of insurance coverage.

(3) **ADDITIONAL INFORMATION.** Additional information required by the department shall be provided as requested.

**Note:** The department will request information required for proper classification of rides unfamiliar to the department or rides with unfamiliar modifications, and other information related to safe operation, such as, but not limited to, maintenance and inspection records and certification of pressure vessels.

(4) **MODIFIED AMUSEMENT RIDES.** Amusement rides modified since the last registration shall not be operated until the department has been provided with information to determine the proper maintenance and test class and the owner/operator has obtained a new registration certificate.

(5) **AMUSEMENT RIDE REGISTRATION REFUSAL.** Amusement rides with outstanding inspection fees or unabated orders shall not be registered by the department.

(6) **POSTING OF CERTIFICATE.** The registration certificate shall be posted on the ride so that it is visible during ride operation and transportation.

**History:** Emerg. cr. eff. 3-30-78; cr. Register, June, 1978, No. 270, eff. 7-1-78.

**Ind 47.04 Classification of rides for type of inspections and tests required.** (1) **SCOPE.** Amusement rides will be categorized in one of 4 classes in accordance with known characteristics of the ride and its modification(s). The department may request additional information for modified rides and for rides unfamiliar to the department. Rides will be



assigned to class 4 when requested information is not supplied as requested.

(a) The department will notify the owner/operator of the class to which the rides have been assigned and the inspections and tests that will be required.

(b) The department will reclassify rides if the rides fail to continue to meet the criteria for which they were classified.

1. Only rides that are initially, or upon reclassification, assigned to class 4 shall be required to comply with the requirements of section Ind 47.10.

(2) **RIDE CLASSIFICATION CRITERIA.** Rides shall be classified in accordance with the following criteria:

(a) *Unmodified rides.* 1. Class 1. Class 1 consists of properly designed, constructed and maintained rides that move passengers in a mild manner such that a failure would probably not cause serious injury.

**Note:** It is intended that class 1 include such rides as merry-go-rounds, ride-throughs and non-lifting kiddie rides.

2. Class 2. Class 2 consists of properly maintained rides which do not qualify for class 1, but the same manufacturer's model has been proven to be free from defects by 10 years of field service and the ride is recognized to be safe by insurance carriers, owner/operators, and the department.

3. Class 3. Class 3 consists of rides which do not qualify for class 1 or class 2 but are designed and constructed in accordance with an engineering analysis acceptable to the department and are tested to verify the analysis. Documentation of such analysis and testing shall be filed with and accepted by the department.

4. Class 4. Class 4 consists of those rides which do not meet the requirements for the other 3 classes.

(b) *Modified rides.* Modified rides will be classified using the same procedure as unmodified rides.

1. In order to be included in class 3, the design, analysis and tests of modified rides must consider the effect of the modification on the entire ride during assembly, operation, disassembly and transportation.

**History:** Cr. Register, June, 1978, No. 270, eff. 7-1-78.

**Ind 47.05 Design and construction.** (1) **GENERAL.** (a) Amusement rides and devices subject to the provisions of this code shall be so designed and constructed that the maximum allowable loads will not stress any part beyond allowable limits.

(b) Amusements shall be anchored, guyed, stayed or otherwise supported to provide proper stability and to restrict any adverse change in stability.

**History:** Cr. Register, July, 1967, No. 139, eff. 8-1-67.

**Ind 47.06 Emergency brakes and anti-rollback devices.** If cars or other components of an amusement device may collide upon failure of normal controls, emergency brakes sufficient to prevent such collisions

shall be provided. On rides which make use of inclined tracks, automatic anti-rollback devices shall be installed to prevent backward movement of the passenger-carrying units in case of failure of the propelling mechanism.

**History:** Cr. Register, July, 1967, No. 139, eff. 8-1-67.

**Ind 47.07 Speed-limiting devices required.** An amusement device capable of exceeding its maximum safe operating speed shall be provided with a maximum speed-limiting device.

**History:** Cr. Register, July, 1967, No. 139, eff. 8-1-67.

**Ind 47.08 Passenger-carrying devices.** (1) The interior and exterior parts of all passenger-carrying amusement devices with which a passenger may come in contact shall be smooth and rounded, free from sharp, rough or splintered edges and corners, with no protruding studs, bolts, screws, or other projections. Interior parts upon which or against which a passenger may be forcibly thrown by the action of the ride shall be adequately padded.

(2) Devices that are self-powered and that are operated by passengers shall have the driving mechanism so guarded and the guards so locked in place as to prevent passengers from gaining access to the mechanism.

(3) Such belts, bars, foot rests and other equipment as may be necessary for safe entrance and exit and for support while the device is in operation shall be provided. Such equipment and the fastenings shall be of sufficient strength to retain the passengers. The fastenings shall be of a type which cannot be inadvertently released.

**History:** Cr. Register, July, 1967, No. 139, eff. 8-1-67.

**Ind 47.09 Periodic inspections and operational tests.** The owner/operator shall arrange for all rides and attractions to be subjected to periodic inspections and operational tests. Such inspections and tests shall be documented by written records and the records shall be kept as required in section Ind 47.13 (2).

(1) **INSPECTION AT ASSEMBLY.** A visual inspection for defect shall be made at assembly. Inspection of all fastening devices shall be made to assure that fasteners recommended by the manufacturer have been properly installed.

(2) **DAILY INSPECTION AND OPERATIONAL TESTS.** Amusement rides and attractions shall be inspected and their operation tested each day before used by passengers or frequenters. The inspection and operational test shall include the operation of all control devices, speed-limiting devices, brakes and other equipment provided for safety.

**History:** Cr. Register, June, 1978, No. 270, eff. 7-1-78.

**Ind 47.10 Testing of rides assigned to class 4.** Rides assigned to class 4 shall be load tested prior to initial operation. Immediately following the load test, all critical parts shall be tested for serviceability. The documentation of these tests shall be accepted by the department before the ride is opened to the public in Wisconsin. The test and the documentation shall be performed every 6 years. The test shall be performed in accordance with (3) of this section.



(1) **BALANCED LOAD TEST.** The capability of the ride to operate through a normal cycle with all passenger spaces loaded to 1-3/4 times the rated passenger weight shall be demonstrated through test. The test weights shall have approximately the same center of gravity as the expected passenger. The capability of rides which will not operate with 1-3/4 times rated load shall be demonstrated through verified engineering analysis as specified in Ind 47.04 (2) (a) 3.

**Note #1:** A method of estimating passenger load is presented in Appendix A.

**Note #2:** Individuals conducting balanced load tests should exercise extreme caution and care in planning and conducting such tests in order to prevent accidental injury of viewers and bystanders.

(2) **UNBALANCED LOAD TEST.** An "unbalanced load" or a "static" test in accordance with either (a) or (b) below shall be conducted on all rides. If tipping is imminent during the test, the ride has failed the test and may not be operated unless a positive means to prevent unbalanced loading, acceptable to the department, is provided. If the ride is not capable of operation with the specified unbalanced load, the stability of the ride shall be proved by operating the ride under its maximum unbalanced load capacity.

(a) Unbalanced load tests for stability shall be accomplished by loading the portion of the passenger spaces which cause maximum unbalance and operating the ride at normal speeds. The weight in each of these selected passenger spaces shall be at least equal to the weight of passengers that could reasonably be carried in the space.

(b) Static tests for stability shall be accomplished by applying forces equal in direction and magnitude to the calculated greatest unbalance force that will occur during testing by unbalanced loads.

**Note:** The ride is not in motion during static stability tests. Forces are exerted and measured via attachments to the earth.

(3) **DOCUMENTATION.** Class 4 rides shall not be opened to the public until documentation of successful completion of tests, in accordance with (1) and (2) above and in accordance with Ind 47.11 (2) (b), have been accepted by the department.

**History:** Cr. Register, July, 1967, No. 139, eff. 8-1-67; r. and recr. Register, June, 1978, No. 270, eff. 7-1-78.

**Ind 47.11 Test for serviceability.** (1) **SCOPE AND NATURE OF TESTS.** A nondestructive test (such as, but not limited to, magniflux, x-ray, dye or sonic) of critical parts of amusement rides shall be performed in accordance with the test period and implementation program presented in this section.

**Note #1:** The purpose of these tests is to prevent catastrophic failure by using sensitive nondestructive tests to detect deterioration of critical parts of amusement rides.

**Note #2:** Manufacturers and other recognized authorities are encouraged to submit a list of parts that require testing and appropriate means and time between tests. When available, this list will be made available to the ride owner/operator.

(2) **TEST PERIOD.** (a) *Classes 2 and 3.* The critical parts of all class 2 and class 3 amusement rides shall be tested for serviceability every 3 years or 3,000 hours of operation, whichever comes first, or at testing intervals recommended by the manufacturer.

Register, June, 1978, No. 270  
Amusement Rides and Devices

(b) *Class 4.* The critical parts of all class 4 amusement rides shall be tested for serviceability immediately following each required load test and every 2 years or 2,000 hours of operation, whichever comes first.

(3) **RECORD OF TESTS.** The method and results of the test shall be documented by a qualified person, such as a professional engineer, acceptable to the department. Test documentation shall be maintained and made available to the department in accordance with the requirements of section Ind 47.13 (2).

(4) **IMPLEMENTATION OF PROGRAM FOR CLASS 2 AND 3 RIDES.** A test program for class 2 and class 3 rides shall be scheduled when a show first becomes subject to these rules and implemented over the next 3 years.

(a) A list of owned and booked-in rides, with an estimate of operating time since each ride was constructed, factory rebuilt or tested, shall be submitted to the department when the rides are registered.

(b) The ride list shall be arranged according to operating hours and divided into 3 groups of approximately equal number. All the rides in the group with the most operating hours shall be tested before operation in the next calendar year. Rides in the 2 remaining groups shall be tested before operation in 2 subsequent years; the group with the most operating hours first, thereby establishing a program where approximately 1/3 of the rides are tested each year.

1. *Exception.* A properly maintained new or factory rebuilt ride need not be tested until 5 years or 5,000 hours of operation after construction or rebuilding, whichever comes first.

(c) Rides new to the show after a test program has been scheduled shall be tested before operation.

1. *Exception.* Properly maintained rides need not be tested until 5 years or 5,000 hours of operation after construction, factory rebuilding or acceptable test, whichever comes first, provided such maintenance is documented and accepted by the department.

(5) **IMPLEMENTATION OF PROGRAM FOR CLASS 4 RIDES.** After initial load testing, an implementation program for class 4 rides, similar to that outlined in (4), shall be scheduled for the time period as specified in (2) (b) of this section.

**History:** Cr. Register, July, 1967, No. 139, eff. 8-1-67. r. and recr. Register, June, 1978, No. 270, eff. 7-1-78.

**Ind 47.12 Daily inspection and operational test.** **History:** Cr. Register, July, 1967, No. 139, eff. 8-1-67; r. Register, June, 1978, No. 270, eff. 7-1-78.

**Ind 47.13 Maintenance and record-keeping.** (1) **MAINTENANCE.** (a) Defective conditions noted during the inspections and tests, or by a department safety specialist, shall be corrected.

(b) Modifications to improve ride safety recommended by the manufacturer and recognized standards shall be made.

(c) Repairs and modifications to the ride shall be made in accordance with the following:

Register, June, 1978, No. 270  
Amusement Rides and Devices



1. Repairs and modifications shall be in accordance with the manufacturer's recommendations when available. In the absence of manufacturer's recommendations, repairs and modifications shall be in accordance with recognized good practice.

2. Welds of critical parts shall be made by a certified welder qualified for the type of welding performed. Welding shall be performed in accordance with written procedures supplied by the ride manufacturer.

a. Welders shall be certified in accordance with the requirements of section Ind 53.53 of Wis. Adm. Code chapters Ind 50-64—Building and Heating, Ventilating and Air Conditioning Code.

3. Welds on noncritical parts shall be made by persons trained in proper welding techniques.

4. The size and type of welding rod and methods of application shall be appropriate for the materials joined; the weld shall have proper penetration without undercutting and shall have the appearance of a good weld.

(d) Improperly maintained, repaired or modified rides will be reclassified by the department in accordance with section Ind 47.04 (1) (b).

(2) RECORD-KEEPING. (a) A written record of inspections, tests, repairs and hours of operation since the last test for serviceability of critical parts shall be maintained for a period of at least 7 years and shall be made available to the department on request. Records for at least the 30 previous days of operation shall be kept with the ride.

1. The department will not register a ride unless records are kept of all its operations, including those in other states and countries.

a. *Exception.* The first year a show becomes subject to these rules an affidavit stating that the rides have been well maintained or properly repaired will be sufficient for registration.

**Note:** As a minimum, form SBD-5292 may be used as the affidavit.

(b) An authorized person shall attest to the accuracy of the records and shall sign such records.

**History:** Cr. Register, June, 1978, No. 270, eff. 7-1-78.

**Ind 47.15 Assembly and disassembly.** (1) SUPERVISION. The assembly and disassembly of an amusement device or temporary structure shall be done by or under the supervision of an authorized person.

(2) QUALITY OF ASSEMBLY WORK. Parts shall be properly aligned, and shall not be bent, distorted, cut or otherwise damaged to force a fit. Parts requiring lubrication shall be lubricated in course of assembly. Parts excessively worn or materially damaged shall not be used. Fastening and locking devices shall be installed where required for dependable operation.

(4) TOOLS AND EQUIPMENT. (a) Persons engaged in the assembly or disassembly of amusement devices or temporary structures shall be provided with and shall use tools of proper size and design to enable the work to be done safely. Broken, damaged and unsuitable tools shall not be used. Electrically operated tools shall be grounded during use.

Register, June, 1978, No. 270  
Amusement Rides and Devices

(b) Ladders, scaffolds and safety belts used in assembly or disassembly work shall be of the design, material and construction specified in Wis. Adm. Code, chapter Ind 1 (Safety) and chapter Ind 35 (Safety in Construction).

(c) Fiber or wire rope used in assembly or disassembly work shall meet those standards specified in Wis. Adm. Code, chapter Ind 35 (Safety in Construction).

(d) Tackle blocks shall be of a size to fit the rope. All load-carrying equipment shall be designed and constructed throughout to support the intended load.

(5) LIGHTING OF WORK AREA. See section Ind 47.52.

(6) PERSONS IN WORK AREA. A sufficient number of persons to do the work properly shall be engaged for the assembly or disassembly of amusement devices and temporary structures. Persons not so engaged shall be prevented from entering the area in which the work may create a hazard.

**History:** Cr. Register, July, 1967, No. 139, eff. 8-1-67; am. (2) and r. (3), Register, June, 1978, No. 270, eff. 7-1-78.

**Ind 47.16 Location notices for non-permanent amusements.** No amusement device or temporary structure shall be used at any time or location unless notice of intent has been filed on Peddler, Transient Merchant or Showman's License application form of the Motor Vehicle department 7 days before the first intended date of use.

**History:** Cr. Register, July, 1967, No. 139, eff. 8-1-67.

**Ind 47.20 Access and egress to and from amusement devices, rides and temporary structures.** (1) GENERAL REQUIREMENTS. Safe and adequate means of access to and egress from amusement devices, rides and temporary structures shall be provided. Such means of access and egress shall have:

(a) Protection from adjacent hazards or from frequenters failing by the use of rails, enclosures, barriers or similar means.

(b) All passageways kept free from debris, obstructions, projections and other hazards. All surfaces shall be such as to prevent slipping and tripping.

(c) Width of passageways not less than the exit doors or stairs to which it leads, but in neither case shall it be less than 44 inches. Head clearance shall not be less than 7 feet.

(d) Either stairways or ramps and the necessary connecting landings and/or platforms whenever the frequenters enter or leave a device, ride or temporary structure that is above or below grade or floor level at entrance to or exit from such amusement.

1. A landing and/or platform shall be provided immediately at entrance to or exit from an amusement.

(2) DESIGN OF STAIRWAYS, LANDINGS AND RAMPS. (a) Stairways, landings and ramps shall be designed, constructed and maintained to sustain safely a live load of at least 100 pounds per square foot.

Register, June, 1978, No. 270  
Amusement Rides and Devices

(b) Stairways, landings and ramps leading to or from an amusement device *not in connection with* a permanent or temporary structure intended for public occupancy within shall not be less than 22 inches wide for single lane passage or 44 inches for double lane passage. Landings shall not be less than 3 feet long measured in direction of travel.

1. Stair treads shall not be less than 9½ inches (measured from riser to riser) and the rise shall not be greater than 7¾ inches (measured from tread to tread). Between any 2 connected adjoining levels, the treads shall be of uniform depth and the risers shall be of uniform height. The slope of ramps shall not exceed one foot rise in 4 feet of run.

(c) Stairways, landings and ramps *in connection with* temporary structures intended for public occupancy within, shall not be less than 44 inches wide. Landings shall not be less than 3 feet 6 inches long measured in direction of travel.

1. Stair treads shall not be less than 10 inches (measured from riser to riser) and the rise shall not be greater than 7½ inches (measured from tread to tread). Between any 2 connected adjoining levels, the treads shall be of uniform depth and the risers shall be of uniform height. The slope of ramps shall not exceed one foot rise in 8 feet of run.

(d) Handrails: 1. Handrails shall be provided on both sides of all stairways of more than 2 risers connecting adjoining levels whose difference in elevation exceeds 15 inches.

2. Handrails shall be provided on both sides of landings and/or platforms and ramps more than 15 inches above grade.

3. Handrails shall be at least 30 inches above the ramp surface or nose of steps and 42 inches above the landings.

4. Distances between handrails shall not be less than 18 inches for single lane passage and 36 inches for a double lane passage.

5. Two intermediate rails spaced equally apart shall be provided with all handrails.

6. Stairways or ramps more than 8 feet wide shall be provided with railings dividing the widths into not more than 8 feet, nor less than widths stated in Ind 47.20 (2) (d) 4.

History: Cr. Register, July, 1967, No. 139, eff. 8-1-67.

**Ind 47.21 Exits.** (1) All temporary structures shall have at least 2 exits located at or near opposite ends of the structure.

(2) If the capacity of the temporary structure exceeds 600 persons, exits shall be provided on 3 sides. If the capacity exceeds 1,000 persons the exits shall be located on 4 sides. Exits shall be uniformly distributed as near as possible and the line of travel from any point to an exit shall not exceed 150 feet.

(3) The total width of exits serving the structure shall not be less than 44 inches per 100 persons. Exit openings to the outside shall satisfy Wis. Adm. Code, chapter Ind 54 (Building) for less than 100 persons, and chapter Ind 55 where there are over 100 persons. The width of a doorway

Register, June, 1978, No. 270  
Amusement Rides and Devices

shall be taken as the width of the door. The width of the stairway shall be taken as the length of the treads between stringers.

History: Cr. Register, July, 1967, No. 139, eff. 8-1-67.

**Ind 47.25 Design and construction of temporary structures.** (1) All temporary structures used in connection with amusement devices shall be designed and constructed to carry safely all loads to which such structures may normally be subjected. Materials used in above structures shall not be stressed beyond limits stated in the Wis. Adm. Code, chapter Ind 53 (Building).

(a) *Tents.* For purposes of this code a tent is a portable, temporary shelter or a structure, the covering of which is made of pliable material. The design of the tent shall satisfy the Wis. Adm. Code, chapter Ind 55 (Building).

(b) *Rigid or semi-rigid construction.* Temporary structures of rigid or semi-rigid construction shall be designed to withstand wind pressures of at least 20 pounds per square foot of projected area. The structure shall be anchored to withstand at least 10 pounds per square foot lifting force based on entire area.

History: Cr. Register, July, 1967, No. 139, eff. 8-1-67.

**Ind 47.30 Control of operations.** (1) Operation of amusement rides, other than passenger-operated or controlled, shall be by authorized persons at least 18 years of age.

(a) Ride operators shall be in the immediate vicinity of the operating controls at all times during normal operations and shall carefully watch to prevent dangerous actions by the riders and to detect apparent impending mechanical failure.

(b) Rides designed to carry children weighing 75 pounds or less shall be provided with a minimum of one ride operator per ride during the operating cycle of the ride. Ride operators shall keep the ride controls under their direct supervision during the operating cycle of the ride and shall carefully watch to prevent dangerous actions by the riders.

Note: The intent of this rule is not to prohibit one ride operator from supervising several rides. However, only one ride per operator may be operating at any one time.

(c) All control devices shall be guarded against accidental operation.

(2) Unauthorized persons shall not operate amusement rides except during emergencies.

(a) Clear, simple emergency-stopping instructions shall be printed on durable material and conspicuously posted near the controls.

(3) Passenger-operated or controlled amusement rides shall have the controls located where they are readily available for use whenever the ride is in operation.

(a) Clear, verbal instructions for controlling the ride shall be given to all passengers.

(b) Clear, written instructions for controlling the ride shall be printed on durable material and conspicuously posted.

Register, June, 1978, No. 270  
Amusement Rides and Devices

(4) A means to prevent accidental or mischievous operation of amusement rides shall be provided.

(a) Unattended ride controls shall be arranged such that accidental or mischievous operation will not occur.

**Note:** Locked control panel covers, key switching, remote "carry-with-operator" controls and similar devices satisfy the intent of this rule.

**History:** Cr. Register, July, 1967, No. 139, eff. 8-1-67; r. and recr. Register, June, 1978, No. 270, eff. 7-1-78.

**Ind 47.31 Wind and storm hazards.** An amusement device which is exposed to wind or storms shall not be operated under dangerous weather conditions except to release or discharge occupants.

**History:** Cr. Register, July, 1967, No. 139, eff. 8-1-67.

**Ind 47.32 Signal systems.** Signal systems for the starting and stopping of amusement devices shall be provided where the operator of the device does not have a clear view of the point at which passengers are loaded or unloaded. Any code of signals adopted shall be printed and kept posted at both the operator's and signalman's stations. All persons who may use these signals shall be fully instructed in their use. Signals for the movement or operation of an amusement device shall not be given until all passengers and other persons who may be endangered are in a position of safety.

**History:** Cr. Register, July, 1967, No. 139, eff. 8-1-67.

**Ind 47.33 Public protection.** An amusement device shall not be used or operated while any person is so located as to be endangered. Areas in which persons may be so endangered shall be fenced, barricaded or otherwise guarded against public intrusion.

**History:** Cr. Register, July, 1967, No. 139, eff. 8-1-67.

**Ind 47.34 Guarding of machinery.** Machinery used in or with an amusement device shall be enclosed, barricaded or otherwise effectively guarded against contact. Guards removed for maintenance purposes shall be replaced before normal operation is resumed.

**History:** Cr. Register, July, 1967, No. 139, eff. 8-1-67.

**Ind 47.35 Air compressors and equipment.** Air compressors, air compressor tanks and equipment used in connection therewith, shall be constructed, equipped and maintained as covered by the Wis. Adm. Code chapter Ind 41 (Boiler and Pressure Vessel Code). The equipment shall be inspected and tested at least once a year by persons authorized by the department. A record of each inspection shall be kept by the owner and/or manager on the premise where equipment is located and shall be made available on request by the department.

**History:** Cr. Register, July, 1967, No. 139, eff. 8-1-67; am. Register, June, 1978, No. 270, eff. 7-1-78.

**Ind 47.36 Fire prevention and protection.** (1) FIRE RESISTANCE OF FABRICS. Fabrics constituting part of an amusement device or a temporary structure shall be fire-resistant to meet the following standard: 2 strips or test sections either of the fabric used or of other fabric identical therewith shall be tested. Each strip shall be not less than 6 inches wide and 12 inches long. Each strip shall be thoroughly dry and shall then be subjected to an open flame applied to the lower edge while the strip is

Register, June, 1978, No. 270  
Amusement Rides and Devices

held vertically for 12 seconds. Neither strip shall flame for more than 2 seconds after the test flame is removed from contact nor shall the average length of char exceed 2½ inches. The owner and/or manager shall have a certificate or a test report from an approved testing agency or engineer indicating fire resistance rating is equal to or better than above standard.

(2) FIRE EXTINGUISHERS. Approved fire extinguishers shall be provided where necessary to secure reasonable and adequate protection from fire hazards.

(3) FLAMMABLE WASTE. Flammable waste such as oily rags and other flammable materials shall be placed in covered metal containers. Such containers shall not be kept at or near exits.

(4) FLAMMABLE LIQUIDS AND GASES. (a) Gasoline and other volatile liquids and flammable gases shall be stored in cool and ventilated places. Dispensing of such liquids shall be from approved safety cans. Smoking and the carrying of lighted cigars, cigarettes or pipes is prohibited in any area where such liquids or gases are stored or are transferred from one container to another.

(b) Storage and use of flammable liquids and gases shall comply with requirements of Wis. Adm. Code, chapter Ind 8 (Flammable and Combustible Liquids); chapter Ind 9 (Liquid Petroleum Gas); and chapter Ind 1 (Safety).

**History:** Cr. Register, July, 1967, No. 139, eff. 8-1-67.

**Ind 47.37 Cleanliness.** (1) A suitable number of metal containers for refuse shall be provided in and around all amusement devices and temporary structures. Excessive accumulations of trash or refuse shall be promptly removed. All parts of amusement devices and temporary structures used by passengers or customers shall be maintained in a clean condition.

(2) All walkways between amusement rides and devices on the premise shall be kept free from debris, obstructions or other hazards.

**History:** Cr. Register, July, 1967, No. 139, eff. 8-1-67.

**Ind 47.50 Electrical.** (1) GENERAL. (a) Live parts of electrical equipment operating at 50 volts or more shall be guarded against accidental contact by enclosure or by locating the equipment as follows:

1. In a room or enclosure which is accessible only to authorized persons.

2. Elevated 8 feet or more above the floor or ground.

(b) All wiring located within 8 feet of the ground, floor or other level accessible to frequenters shall consist of power cables or conductors in conduit.

(c) All wiring which is worn or defective so as to endanger life or property shall be repaired or replaced.

(2) OUTDOOR EQUIPMENT AND WIRING. (a) Open overhead conductors shall be installed with a minimum vertical clearance of at least 18 feet over spaces where trucks may travel and 12 feet over spaces accessible to pedestrians only.

Register, June, 1978, No. 270  
Amusement Rides and Devices



(b) In locations where vehicles and frequenters may travel, cables shall be protected with conduit, planks or other approved methods.

(c) All electrical equipment exposed to the weather shall be of approved weatherproof construction.

(3) **WIRING IN TEMPORARY STRUCTURES.** A vertical clearance of at least 8 feet shall be maintained between open conductors and the floor or other levels accessible to the frequenters or employes.

(4) **GROUNDING.** All equipment shall be grounded in accordance with Wis. Adm. Code, chapter E 250 (Electrical).

(5) **OVERCURRENT PROTECTION OF CONDUCTORS AND MOTORS.** (a) Conductors shall be protected in accordance with their ampacities.

(b) Motors shall be protected according to requirements of Wis. Adm. Code, chapter E 430 (Electrical).

(6) **MASTER SWITCH.** Each electrically operated amusement device not designed to be controlled directly by the passenger shall be provided with a disconnect power switch placed within reach of the operator.

**History:** Cr. Register, July, 1967, No. 139, eff. 8-1-67.

**Ind 47.51 Lighting of exits and passageways.** Amusement devices, temporary structures, access thereto and exits therefrom shall, while in operation or occupied, be provided with illumination by natural or artificial means of no less than 5 footcandles measured at grade level.

**History:** Cr. Register, July, 1967, No. 139, eff. 8-1-67.

**Ind 47.52 Lighting of work area.** Assembly and disassembly of amusement devices and temporary structures shall be done under light conditions of no less than 10 footcandles measured in area of work or at grade level.

**History:** Cr. Register, July, 1967, No. 139, eff. 8-1-67.

**Ind 47.60 Accident reporting.** Injuries that require treatment by licensed professional medical personnel or are recorded at a first aid station shall be reported to the department. A copy of the owner's report to the insurance carrier will be sufficient, but it should include suggestions for prevention of similar accidents.

**History:** Cr. Register, July, 1967, No. 139, eff. 8-1-67; r. and recr. June, 1978, No. 270, eff. 7-1-78.

**Ind 47.61 Retroactivity.** The rules of this chapter shall apply to all amusement rides and devices now in existence and to those amusement rides and devices hereafter constructed.

**History:** Emerg. cr. eff. 3-1-78; cr. Register, June, 1978, No. 270, eff. 7-1-78.

APPENDIX A

A-47.10 (2) (a) **SAFETY FACTOR.** The anthropometric data presented in reference 1 indicates correlation between hip width and body weight. Assuming that the hip width determines the number of persons that can occupy an amusement ride passenger space, their total weight can be estimated from hip width vs. body weight data if the dimensions of the space are known.

Figure 1 presents a conservative estimate of hip width vs. body weight for the American public. This data should be used to determine the weight to be placed in each passenger space when an amusement ride is load tested in accordance with section Ind 47.10.

*Example of the use of this data:*

Rated capacity of space .....	3 adults
Hip space .....	46 inches
Hip space per person.....	$\frac{46}{3} = 15.33$ inches
.....	3
Corresponding body weight.....	187 pounds (see Figure 1)
Total load weight = 3 x 187 x 1.75 =	981.75

Reference 1: "Personnel Guardrails for the Prevention of Occupational Accidents," Document No. NBSIR 76-1132, Center for Building Technology, Institute of Applied Technology, National Bureau of Standards, Washington, D. C. 20234, July 1976, Final Report.

DATA FOR ESTIMATING WEIGHT OF ADULT MALE PASSENGERS  
THAT CAN REASONABLY OCCUPY SPACE ON AMUSEMENT RIDES

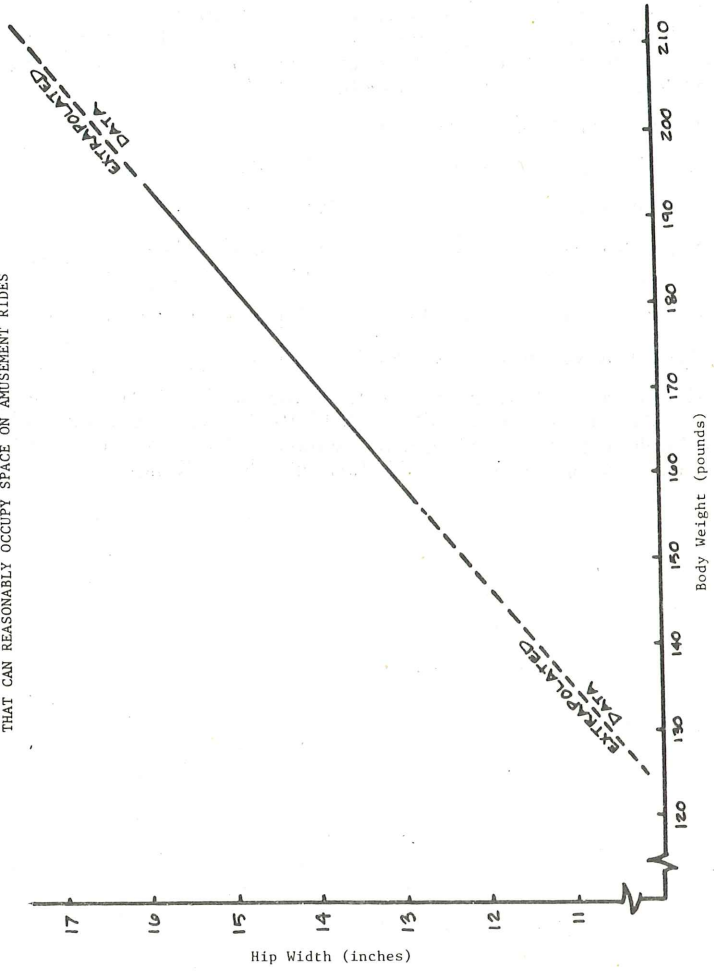


Fig. 1