

CR 84-235

RULES CERTIFICATE

STATE OF WISCONSIN)
) SS
DEPT. OF INDUSTRY,)
LABOR & HUMAN RELATIONS)

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TO ALL TO WHOM THESE PRESENTS SHALL COME, GREETINGS:

I, Howard S. Bellman, Secretary of the Department of Industry, Labor and Human Relations, and custodian of the official records of said department, do hereby certify that the annexed rule(s) relating to Ch. ILHR 34 - Amusement Rides and Attractions were duly approved and adopted by this department on 12/16/85.
(Subject) (Date)

I further certify that said copy has been compared by me with the original on file in this department and that the same is a true copy thereof, and of the whole of such original.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the official seal of the department at 8:30 am in the city of Madison, this 16th day of December A.D. 1985.

Howard S. Bellman
Secretary



RULES in FINAL DRAFT FORM

Rule: Ch. ILHR 34 (Formerly Ch. Ind 47)

Relating to: Amusement Rides and Attractions

Clearinghouse Rule No.: 84-235

Administrative rules to repeal ch. Ind 47; to create ch. ILHR 34 relating to amusement rides and attractions.

ANALYSIS OF RULES

The proposed changes update, expand and clarify the administrative rules pertaining to the design, construction, erection, operation and maintenance of amusement rides and attractions.

The proposed rules reprefix and renumber the current rules from chapter Ind 47 to chapter ILHR 34. The proposal also reorganizes and reformats the rules into the following 6 sub-chapters:

- Subchapter I - Purpose and Scope,
- Subchapter II - Definitions,
- Subchapter III - Administration and Enforcement,
- Subchapter IV - Tests and Recordkeeping,
- Subchapter V - Design and Construction,
- Subchapter VI - Erection, Operation and Maintenance.

The proposal includes a comprehensive set of rules for the administration and enforcement of the code, including plan submittal and review requirements for custom-built, permanent site specific amusement rides.

The proposal provides clarifications and additions to the defined terms of the code. A definitive list of amusement rides, by name, is provided to assist the user of the code in identifying the proper amusement ride classification for the ride.

New and expanded rules and diagrams are included for the foundation, blocking and cribbing used in conjunction with amusement rides. The proposal also includes expanded and reorganized requirements for access, egress and passage ways to and through amusement rides.

The chapter includes a new rule requiring the installation and use of safety belts or bars for non-skiing related chairlift operations.

The new chapter includes expanded requirements for the erection, operation and maintenance of amusement rides including updated electrical requirements based upon chapter ILHR 16 and the National Fire Protection Association National Electrical Code (NEC). Structural welding requirements based upon s. ILHR 53.53 of the Wisconsin Administrative Building and Heating, Ventilating and Air Conditioning Code are also included.

New requirements for the use, securement and replacement of wire rope are included.

Expanded explanatory materials and diagrams are provided in the Appendix.

The proposed rules complete a comprehensive rewrite of the department begun several years ago. The proposal was developed in conjunction with the Amusement Rides and Devices Advisory Committee. That committee has endorsed the proposal for public hearing consideration. The following is a listing of the members of the Amusement Rides and Devices Advisory Committee:

Amusement Rides and Devices Advisory Committee:

- Francis W. Biehl, Wisconsin Society of Professional Engineers
- Michael Calkins, Outdoor Amusement Business Assoc., Inc. - Active
Carnival Operator
- Robert Dillenburg, Wisconsin Association of Fairs
- Samuel F. Glazer, Wisconsin Council of Safety - Wisconsin Association
of Manufacturers and Commerce
- Oliver Robert Haase, AFL CIO
- Arthur Kedrowicz, Outdoor Amusement Business Assoc., Inc. - Active
Carnival Operator
- Alan Larkee, Outdoor Amusement Business Assoc., Inc. - Active
Carnival Operator
- Wayne D. Milestone, University of Wisconsin
- W. L. "Mike" Mowrey, Insurance Industry
- Arthur M. Sellner, American Recreational Equipment Assoc.
- Fred Wiemer, Outdoor Amusement Business Assoc., Inc. - Concessionaire
- Robert Williams, Wisconsin Department of Agriculture, Trade &
Consumer Protection

Pursuant to the authority vested in the state of Wisconsin, Department of Industry, Labor and Human Relations by ss. 101.02 (1), 101.02 (15) (h) to (j), Stats., the Department of Industry, Labor and Human Relations hereby repeals and creates rules interpreting s. 101.02 (15) (h) to (j), Stats., as follows:

SECTION 1. Ch. Ind 47 is repealed.

SECTION 2. Ch. ILHR 34 is created to read:

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AMUSEMENT RIDES AND ATTRACTIONS

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CHAPTER ILHR 34
AMUSEMENT RIDES AND ATTRACTIONS

SUBCHAPTER I - PURPOSE AND SCOPE

ILHR 34.001 PURPOSE. The purpose of this chapter is to set forth minimum standards for design, construction, operation, repair, inspection, assembly, disassembly and use of amusement rides and attractions, permanent or temporary structures, at carnivals, fairs and other places of amusement for the safety of employes and frequenters.

ILHR 34.002 SCOPE. (1) APPLICATION. The provisions of this chapter shall apply to amusement rides and amusement attractions located at permanent sites or moved from site to site.

(2) EXCLUSIONS. The provisions of this chapter do not apply to non-mechanized playground equipment, such as swings, seesaws, stationary spring mounted animal features, rider propelled merry-go-rounds, climbers, slides, swinging gates and physical fitness devices.

ILHR 34.003 RETROACTIVITY. The provisions of this chapter shall apply to all amusement rides and attractions in existence on the effective date of this section and to those amusement rides and attractions constructed after the effective date of this section.

SUBCHAPTER II - DEFINITIONS

ILHR 34.01 DEFINITIONS. In this chapter, the following definitions shall apply.

(1) "Amusement attraction" means any show or exhibition but does not include amusement rides.

(2) "Amusement equipment" means any object used in conjunction with amusement rides or amusement attractions that could be expected to contribute to injury.

Note: Examples of amusement equipment include but are not limited to concession stands, light towers, power-generation and distribution systems, decorations, signs and speaker systems.

(3) "Amusement ride" means a device or animal that carries, transports or supports frequenters in unusual, entertaining or thrilling modes of motion and any vehicle providing entertainment or transportation in conjunction with an amusement ride or an amusement attraction.

Note #1: Examples of amusement rides include but are not limited to rider-powered and power-driven thrill rides, mild rides and ride-throughs, walk-throughs, air pillows, giant slides, rope ladders, and animal rides. Vehicles include parking lot trams, old fire engines, stage coaches, trains and similar vehicles.

Note #2: Amusement rides do not include aircraft under the jurisdiction of the federal aviation administration, railroad trains under the jurisdiction of the federal railroad administration or boats used on navigable waters.

(4) "Approved" means approved by the department.

(5) "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 or operator.

(6) "Coin-operated ride" means any device meeting the definition of amusement ride and requiring the insertion of a coin or token to cause the ride to activate.

(7) "Concession stand" means a facility in which food and other goods are sold.

(8) "Critical parts" means those parts of amusement rides and attractions where failure could result in serious personal injury.

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

(10) "Equivalent degree of safety" means an alternative to strict compliance with this chapter provided the alternative establishes an equivalency to the subject rule and the alternative has been approved by the department as specified in s. ILHR 34.11.

(11) "Frequenter" means every person, other than an employe, who may go in or be in a place of employment, public building, amusement attraction or amusement ride under circumstances which render such person other than a trespasser.

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

(13) "Owner" means the person holding legal title to the amusement ride or attraction, or the designated representative, lessee or agent.

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

(15) "Professional engineer" means an engineer registered in the state of Wisconsin.

(16) "Properly maintained" means assembling, disassembling, transporting and operating amusement rides and attractions in accordance with recognized safe 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.

(17) "Recognized safe practice" means that the materials and methods used to assemble, disassemble operate, transport, maintain, repair and modify amusement rides and attractions are in accordance with the written specifications and procedures of the manufacturer, the owner's liability insurance carrier, nationally recognized standards, or the written standards of the department; or, in the absence of written specifications, procedures or standards, in accordance with the best practices of the skills and trades involved.

(18) "Serviceability" means that an amusement ride or attraction has been transported, erected, maintained and repaired in accordance with recognized safe practice; and that critical parts are not weakened by abnormal wear or cracks, improper repair, or other conditions.

SUBCHAPTER III - ADMINISTRATION AND ENFORCEMENT

ILHR 34.02 ASSIGNMENT OF CLASSIFICATION OF AMUSEMENT RIDES. (1) GENERAL. The department shall classify amusement rides into one of the 5 classifications as specified in s. ILHR 34.03 on the basis of known characteristics of the amusement ride and any modifications made to the ride.

(2) ADDITIONAL INFORMATION. (a) The department may require additional information sufficient to properly classify amusement rides.

(b) An amusement ride shall be assigned to class 4 when requested information for the amusement ride is not provided.

(3) NOTIFICATION. The department shall notify the owner to which class the amusement ride has been assigned and of required inspections and tests.

(4) RECLASSIFICATION. The department shall reclassify rides if the amusement rides fail to continue to meet the criteria for which they were classified.

ILHR 34.03 AMUSEMENT RIDE CLASSIFICATIONS. Amusement rides shall be classified as follows:

(1) CLASS 1. Class 1 shall consist of amusement rides that are properly designed, constructed and maintained to move passengers in a mild manner.

Note: Examples of Class 1 amusement rides include, but are not limited to:

- | | |
|--------------------------|---------------------|
| Air Pillow | Kiddie Coaster |
| Antique Cars | Kiddie Ferris Wheel |
| Astroliner | Kiddie Snowmobile |
| Bulgy Whale | Kiddie Train |
| Caterpillar Coaster | Kiddie Whip |
| Dark Ride | Lady Bug |
| Dragon | Little Dipper |
| Flying Saucer | Merry-Go-Round |
| Giant Slides | Midge-O-Racer |
| Hampton Antique Auto | Midget Cars |
| Hampton Boats | Mini Jets |
| Hampton Buggies | Pony Ride |
| Hampton Bus | Raceway |
| Hampton Combo | Rocket Race |
| Hampton Jump Cycle | Rope Ladders |
| Hampton Motor Cycles | Sky Fighter |
| Hampton Rock, Spin, Roll | Star Jet Kiddie |
| Hampton Space Age | Swamp Buggy |
| Helicopter | Rank Ride |
| Indian | Tike Roadster |
| Jeep Ride | Turn Tike |
| Kiddie Autos | Venture River |
| Kiddie Bumper Cars | Venture Space Tower |
| Kiddie Chair Swing | Walk-Throughs |

(2) CLASS 2. (a) Class 2A shall consist of standard thrill-type amusement rides which have been proven by at least 7 years of field service and performance acceptable to the department.

Note: Examples of Class 2A amusement rides include, but are not limited to:

- | | |
|-----------------------|-----------------------|
| Bubble Bounce | Railroads (Miniature) |
| Bumper Cars | Rock-O-Plane |
| Casino | Rok-N-Roll |
| Caterpillar | Roll-O-Plane |
| Chair Swings | Roundup |
| Cobra | Saturn 6 |
| Cuddle Up | Scat |
| Dodgem Cars | Scooters |
| Ferris Wheel | Scrambler |
| Flying Coaster | Sizzler |
| Flying Comet | Spider |
| Flying Scooters | Sunliner |
| Fly-O-Plane | Super Round-Up |
| Frolic | Swift |
| Heart Flip | Swinger |
| Hully Gully | Swinging Gym |
| Hurricane | Tempest |
| Hustler | Tilt-A-Whirl |
| Looper | Tip Top |
| Loop-O-Plane | Trabant |
| Majic Carpet (Wisdom) | Twister |
| Merry Mixer | Whip |
| Meteor | Yo Yo |
| Musical Chairs | Zipper |
| Octopus | Zumer |
| Paratrooper | |

(b) Class 2B shall consist of standard thrill-type amusement rides which are designed and constructed in accordance with an engineering analysis acceptable to the department and are tested to verify the analysis, but do not have 7 years of field service.

Note #1: Examples of Class 2B amusement rides include, but are not limited to:

Columbus	Sidewinder
Gravitron	Space Shuttle
Krazy Cars	Vari 8

Note #2: Amusement rides assigned to class 2B will be reassigned to class 2A after 7 years of field service and performance acceptable to the department.

(3) Class 3. Class 3 shall consist of major thrill-type amusement rides designed, constructed and tested in accordance with engineering analysis acceptable to the department and typically requiring more hours for erection than Class 2 rides.

Note: Examples of Class 3 amusement rides include, but are not limited to:

Astrowheel	Pirate Ship
Cortina Bob	Radar
Enterprise	Rip Cord
Flash	Roller Coaster (Big)
Falling Star	Rotor
Fire Ball	Sea Dragon
Flume Ride	Sky Diver
Flying Bobs	Sky Wheel
Flying Carpet (Zierer)	Snow Ball Express
Free Fall	Space Wheel
Galaxy	Super Loop
Giant Wheel	Swiss Bobs
Himalaya	1001 Nacht
Jet 400	Tobaggan
Loading Star	Tornado (Coaster Type)
Matterhorn	Tri-Star
Monster	Turbo
Mountain Coaster	Twin Dragon
Music Fest	Water Slides
Myler Coaster (Big)	Wave Swinger (Zierer)
Paratower	Wild Mouse
	Zyklon

(4) CLASS 4. Class 4 shall consist of those amusement rides which do not meet the requirements for the other three classes of amusement rides.

(5) MODIFIED AMUSEMENT RIDES. Amusement rides which are modified after their initial design and construction shall be classified using the criteria specified in subs. (1) to (4).

ILHR 34.04 REGISTRATION OF AMUSEMENT RIDES. (1) GENERAL. All amusement rides shall be registered with the department annually. The fees as specified in ch. Ind 69 shall be paid and the amusement rides shall be registered prior to being opened to the public.

Note: For registration purposes, the year begins on April 1 and concludes on March 31.

(2) INFORMATION REQUIRED. The following registration information shall be provided on forms available from the department.

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

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

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

(d) Route, including specific sites and dates on which the amusement ride will be operated in the state. If the route is incomplete or modified, the department shall be notified prior to operation on the adjusted route; and

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

Note: See Appendix A for a reprint of the amusement ride registration form. Form SBD-5292 for amusement ride registration may be obtained by contacting:

Bureau of Safety Inspection
Division of Safety and Buildings
P.O. Box 7969
Madison, Wisconsin 53707
608/266-2780

(3) ADDITIONAL INFORMATION. Additional registration information shall be provided if requested by the department.

(a) Operating and maintenance manuals for all class 3 and 4 amusement rides shall be submitted by the amusement ride manufacturer.

(b) Except as provided in par. (c), proper maintenance of recently-purchased amusement rides not registered in Wisconsin during the previous season shall be proved by tests for serviceability of critical parts as specified in s. ILHR 34.16.

(c) Proper maintenance of amusement rides registered in Wisconsin during the previous season may be established by the records of safety inspections for the amusement ride.

(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 class, and the owner or operator has obtained a new registration certificate.

(5) AMUSEMENT RIDE REGISTRATION REFUSAL. Amusement rides shall not be registered by the department for any of the following reasons:

(a) Unabated written safety-related orders issued by the department;

(b) Outstanding registration and inspection fees;

(c) Modifications, repairs or maintenance that are not in accordance with recognized safe practice; or

(d) Failure to test for serviceability as specified in s. ILHR 34.16.

(6) POSTING OF CERTIFICATE. The registration certificate shall be posted on the amusement ride so that the certificate is visible for inspection purposes during operation.

(7) REGISTRATION PROCESSING TIME. The department shall review the registration application and grant a registration or issue a denial within 15 business days of receiving the required information and fees.

(a) If the department requests information or fees in addition to those originally submitted, the 15-day processing time shall commence upon receipt of the requested items.

(b) The department reserves the right to negotiate an extension of time on registration applications when the applicant is in arrears on payment of fees or compliance with safety orders issued on amusement rides under the ownership or control of the applicant.

ILHR 34.05 EXAMINATION OF PLANS. (1) GENERAL. Plans and specifications for all custom-built, site-specific amusement rides not used in a portable mode shall be submitted to the department for examination and approval before construction commences.

(2) PLANS AND SPECIFICATIONS. At least three sets of plans, which are clear, legible and permanent copies, and one copy of specifications shall be submitted for examination and approval before commencing construction. The plans and specifications shall contain the following information:

(a) General. All plans shall contain the name of the owner and the address of the amusement ride. The name and seal of the Wisconsin registered architect, Wisconsin professional engineer or the name of the person who prepared the plans shall appear on the title sheet;

(b) Plot Plan. The location of the amusement ride with respect to property lines or adjoining streets, alleys, electrical transmission lines or other hazard which may interfere with safe operation, and any other buildings and amusement rides on the same lot or property shall be indicated on the plot plan;

(c) Floor Plans or Layouts. Floor plans or layouts shall be provided for each floor. The size and location of all rooms, doors, windows, structural features, exit passageways, exit lights, and other pertinent information shall be indicated. Schematic exit plans shall be provided for large buildings and amusement rides indicating normal paths of egress;

(d) Elevations. The elevations shall contain information on the exterior appearance of the amusement ride;

(e) Sections and Details. Sections and details shall include information to clarify the design; and

(f) Specifications. The specifications shall be properly identified with the drawings and describe the quality of the materials and the workmanship.

(3) DATA REQUIRED. All plans submitted for approval shall be accompanied by data and information sufficient for the department to determine if the design of the amusement ride meets the requirements of this chapter. The following information shall be submitted:

(a) Structural Data. Sample structural calculations, including assumed bearing value of soil, live loads and itemized dead loads, unit stresses for structural materials and typical calculations; and

(b) Additional Data. When requested, additional data pertaining to design, construction, materials and equipment shall be submitted to the department for approval.

(4) APPLICATION FOR APPROVAL. A plans-approval application form shall be included with the plans submitted to the department for examination and approval.

(a) Conditional Approval. If the department determines that the plans and the specifications substantially conform to the provisions of this chapter, a conditional written approval shall be granted. All conditions not in compliance with this chapter which are identified in the conditional approval shall be corrected before or during construction of the amusement ride. Issuance of a conditional approval by the department does not constitute assumption by the department of any responsibility for the design or construction of the amusement ride.

(b) Denial of Approval. If the department determines that the plans or the application do not substantially conform to the provisions of this chapter, the application for conditional approval shall be denied in writing.

Note: A letter will be sent to the designer and the owner of record with a statement relating to the examination of the plans and citing the conditions of approval or denial. The plans will be dated and stamped "conditionally approved" or "not approved", whichever applies. The department will retain one copy of the plans for all projects. The remaining plans will be returned to the person designated on the plans approval application.

(5) PLAN REVIEW PROCESSING TIME. The department shall review plans, calculations and related information and grant an approval or issue a denial within 15 business days of receiving the requested information and fees. If the department requests information or fees in addition to those originally submitted, the 15-day processing time shall commence upon receipt of the requested items.

ILHR 34.06 EVIDENCE OF PLAN APPROVAL. The engineer, designer, manufacturer or owner shall keep at the site one set of plans bearing the stamp of conditional approval and a copy of the specifications. The plans shall be open to inspection by an authorized representative of the department. Plan approval by the department shall expire one year after the date indicated on the approved plans if construction has not commenced within that year.

ILHR 34.07 REVOCATION OF APPROVAL. The department may revoke any approval or registration issued under the provisions of this chapter, for any false statements or misrepresentation of facts on which the approval or registration was based.

ILHR 34.08 DEPARTMENT INSPECTIONS. (1) Inspections of amusement rides for which plans must be submitted under s. ILHR 34.05 shall be conducted by the department or its authorized representative to ascertain whether the construction or installations conform to the conditionally approved plans, the conditional approval letter, and the provisions of this chapter.

(2) Every amusement ride and attraction shall be subjected to an inspection conducted by the department or its authorized representative.

ILHR 34.09 FEES. Fees for the registration of amusement rides, plan examination and approvals, inspections, petitions for variance and miscellaneous administrative functions shall be submitted as specified in ch. Ind 69. Fees shall be submitted at the time the application for registration or approval is submitted. No registration or determination will be made until the fees are received.

ILHR 34.10 APPEALS. (1) APPEAL OF LOCAL ORDER. Any person affected by any local order which may be in conflict with a rule of the department may petition the department for a hearing on the grounds that the local order is unreasonable and in conflict with the rule of the department.

Note: Section 101.01 (1) (g), Stats., defines "local order" as any ordinance, order, rule or determination of any common council, board of aldermen, board of trustees or the village board, of any village or city, or the board of health of any municipality, or an order or direction of any official of such municipality, upon any matter over which the department has jurisdiction.

(2) APPEAL OF ADMINISTRATIVE RULE. Pursuant to ch. 227, Stats., any municipality, corporation or any 5 or more persons having an interest in an administrative rule may appeal to the department requesting the adoption, amendment or repeal of the rule.

ILHR 34.11 PETITION FOR VARIANCE. The department shall consider and may grant a variance to an administrative rule in this chapter upon receipt of a fee and a completed petition for variance form from the owner provided an equivalency is established in the petition for variance which meets the intent of the rule being petitioned. The department may impose specific conditions in a petition for variance to promote the protection of the health, safety or welfare of the employes or the public. Violation of those conditions under which the petition is granted shall constitute a violation of this chapter.

Note #1: See Appendix A for an example of the petition for variance form (SB-8).

Note #2: Section 101.02 (6), Stats., outlines the procedure for submitting petitions to the department and the department procedures for hearing petitions.

ILHR 34.12 PENALTIES. Penalties for violation of any provision of this chapter shall be assessed in accordance with s. 101.02, Stats.

Note #1: Section 101.02 (13) (a), Stats., indicates penalties will be assessed against any employer, employe, owner or other person who fails or refuses to perform any duty lawfully enjoined, within the time prescribed by the department, for which no penalty has been specifically provided, or who fails, neglects or refuses to comply with any lawful order made by the department, or any judgment or decree made by any court in connection with ss. 101.01 to 101.25, Stats. For each such violation, failure or refusal, such employe, owner or other person must forfeit and pay into the state treasury a sum not less than \$10 nor more than \$100 for each violation.

Note #2: Section 101.02 (12), Stats., indicates that every day during which any person, persons, corporation or any officer, agent or employe thereof, fails to observe and comply with an order of the department will constitute a separate and distinct violation of such order.

SUBCHAPTER IV - TESTS AND RECORDKEEPING

ILHR 34.15 PERIODIC INSPECTIONS AND OPERATIONAL TESTS. The owner shall arrange for all amusement rides 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 specified in s. ILHR 34.18.

(1) INSPECTION AT ASSEMBLY. A visual inspection for defects of the amusement ride 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 shall be inspected and their operation tested each day before use 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.

ILHR 34.16 TESTS FOR SERVICEABILITY. (1) SCOPE AND NATURE OF TESTS. A nondestructive test such as, but not limited to, magnetic particle, x-ray, dye or sonic of critical parts of amusement rides shall be performed in accordance with the test period and implementation program established in this section.

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

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 owners.

(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. When manufacturers have specific recommended testing intervals, they shall file a copy of the recommendations with the department.

(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.

(c) Time Intervals. The specified time intervals in pars. (a) and (b) shall be based upon the date of the previous test report.

(3) RECORD OF TESTS. The test method and results of the test shall be documented by a qualified person, such as a professional engineer. Test documentation shall be maintained and made available to the department as specified in s. ILHR 34.18.

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

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

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

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

(5) IMPLEMENTATION OF PROGRAM FOR CLASS 4 AMUSEMENT RIDES. After initial load testing as specified in s. ILHR 34.17, an implementation program as specified in sub. (4) for class 4 amusement rides shall be scheduled as specified in sub. (2) (b).

ILHR 34.17 LOAD TESTING OF AMUSEMENT RIDES ASSIGNED TO CLASS 4. Amusement 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 test and the documentation shall be performed every 6 years. The test shall be performed as specified in subs. (1) and (2), and documented as specified in sub. (3).

(1) BALANCED LOAD TEST. (a) Except as provided in par. (b), the capability of the class 4 amusement 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.

(b) The capability of amusement rides which can not operate with 1-3/4 times rated load shall be demonstrated through verified engineering analysis.

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 par. (a) or (b) shall be conducted on all class 4 amusement rides. If tipping is imminent during the test, the amusement 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 amusement ride is not capable of operation with the specified unbalanced load, the stability of the amusement ride shall be proved by operating the amusement 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 amusement ride is not in motion during static stability tests. Forces are exerted and measured via attachments to the earth.

(3) DOCUMENTATION. Class 4 amusement rides shall not be opened to the public until documentation of successful completion of tests as specified in subs. (1) and (2) and s. ILHR 34.16 have been accepted by the department.

(4) LOAD TEST PROCESSING TIME. The department will review load test documents and grant an approval or issue a denial to open the amusement ride to the public within 15 business days of receiving the required information and fees. When the department finds it necessary to request and receive information or fees in addition to that originally submitted, the 15-day processing time will commence upon receipt of the requested items.

ILHR 34.18 RECORD KEEPING. (1) OWNER RESPONSIBILITY. Records related to amusement ride safety shall be kept and retained by the amusement ride owner and shall be made available to the department upon request.

(2) REQUIRED RECORDS. Records shall be kept of the following:

(a) Inspections at time of assembly as specified in s. ILHR 34.15 (1);

(b) Daily inspections and operational tests as specified in s. ILHR 34.15 (2);

(c) Tests for serviceability as specified in s. ILHR 34.16; and

(d) Load tests for class 4 amusement rides as specified in s. ILHR 34.17;
and

(e) The hours of operation since the last test for serviceability.

Note: The hours of operation should be recorded after each use to maintain a current running total from the last test for serviceability.

(3) ACCURACY OF RECORDS. An authorized person shall sign the records to attest to their accuracy.

(4) RETAINMENT OF RECORDS. (a) Records for at least the 30 previous days of operation as specified in sub. (2) (a) and (b) and the most recent tests for serviceability as specified in s. ILHR 34.16 shall be kept with the amusement ride.

(b) All records shall be kept at least 7 years.

(5) AVAILABILITY. The records shall be made available to the department to facilitate registration and proof of serviceability as specified in ss. ILHR 34.03, 34.04 (3) and 34.16.

SUBCHAPTER V - DESIGN AND CONSTRUCTION

ILHR 34.19 DESIGN AND CONSTRUCTION. Amusement rides and attractions shall be so designed and constructed that the maximum loads do not stress any part beyond recognized safe practice.

ILHR 34.20 EMERGENCY BRAKES AND ANTI-ROLLBACK DEVICES. (1) EMERGENCY BRAKES. (a) If cars or other components of an amusement ride may collide upon failure of normal controls, emergency brakes to prevent such collisions shall be provided.

(b) A braking mechanism shall be provided to bring the amusement ride to a controlled stop in the case of uncontrolled motion.

(2) ANTI-ROLLBACK DEVICES. On amusement rides which make use of inclines, automatic anti-rollback devices shall be installed to prevent backward movement of the passenger-carrying devices in case of failure of the propelling mechanism.

ILHR 34.21 SPEED-LIMITING DEVICES. An amusement ride capable of exceeding its safe operating speed shall be provided with a speed-limiting device.

ILHR 34.22 PASSENGER-CARRYING DEVICES. (1) GENERAL. All passenger-carrying devices shall be designed, assembled, operated and maintained in accordance with recognized safe practices.

(2) PROTECTION FROM LACERATIONS, ABRASIONS AND PUNCTURES. Interior and exterior parts of all passenger-carrying devices with which a passenger may come into contact shall be free of abrasive and splintered surfaces, sharp edges and corners, protruding studs, bolts, screws and other hazardous projections.

(3) PROTECTION FROM IMPACT INJURIES. Padding or other means to minimize injury due to passenger impact resulting from the action of the amusement ride shall be provided in accordance with recognized safe practice.

(4) LOADING AND UNLOADING. (a) Securely attached grab bars, steps and similar devices that facilitate safe entrance and exit shall be provided in accordance with recognized safe practice.

(b) 1. Except as provided in subd. 2, all passenger-carrying devices shall be stabilized by positive locks while passengers are loading and unloading.

2. Manual stabilization of the passenger-carrying device shall be relied upon only when recommended by the manufacturer.

(c) Entrance and exit shall be oriented to direct frequenters to safe locations.

Note: For example, where a step allows mounting on only one side of a merry-go-round figure, the step on figures adjacent to the inner or outer edges of the ride should be located on the side of the figure away from the edge.

(5) RESTRAINT AND SUPPORT. Securely attached restraining and support devices such as, but not limited to, seat belts, lap bars, footrests and headrests shall be provided in accordance with recognized safe practice.

(a) Seat belts, lap bars and similar means of restraint shall have connections or latches which cannot be readily or inadvertently released by the passenger.

(b) Restraining devices on chair swings shall be of the type which prevent passengers weighing less than 50 pounds from slipping out, or additional means of restraint for the passengers shall be provided in accordance with recognized safe practice.

(c) Restraining devices shall be replaced or repaired when worn or damaged to impair their function. Replacements for restraining devices shall be of equal or greater dimension, strength and padding.

(d) The passenger-carrying devices of class 1 amusement rides, including but not limited to dark rides and miniature train cars, shall be provided with means to prevent passengers from standing if the distance from the floor of the device to an overhead object, such as a doorway, is less than 6 feet 8 inches, or from extending their arms outside the passenger-carrying device if the distance from the side of the passenger-carrying device to an object is less than 3 feet 0 inches.

ILHR 34.23 FOUNDATIONS. (1) GENERAL. Amusement rides, attractions and structures shall be supported and restrained to maintain stability during operation and in emergencies.

(2) PERMANENT FOUNDATION. Permanent foundations for amusement rides, attractions and structures shall comply with ch. ILHR 53.

(a) The foundations shall support the amusement ride, attractions and structure in accordance with recognized safe practice.

(b) Anchorage, restraint and vibration isolation devices shall be provided in accordance with recognized safe practice to prevent horizontal displacement such as "creeping" or "walking", during normal operation and emergency stops.

(3) TEMPORARY FOUNDATIONS. (a) Blocks and shims used as temporary foundations shall be of sound material capable of withstanding the loads applied during normal operation and in emergencies.

1. Hollow concrete blocks shall not be used.

2. Blocking in contact with supporting surfaces shall be of proper size to prevent settling.

(b) 1. Except as provided in subd. 2., the height of a system of blocks above any level shall not exceed the width of the base of that level, as illustrated in Figure 34.23-1.

2. The department may approve a system of blocks not higher than twice the width of its base provided the stability of the amusement ride is not adversely affected and the amusement ride does not impart a horizontal load to the system of blocking.

Note: This exception typically applies only to a small portion of the blocks which support a rigid structure (e.g., bumper-car enclosure), but not to thrill rides, rides with flexible structures, or tall structures or rides, such as slides and ferris wheels.

(c) Each piece of material used in a system of blocks shall be level and oriented so its height does not exceed the width of its base.

(d) All blocks shall be aligned, the angles between blocks used in a crib shall be approximately equal and the load shall be distributed to prevent tipping.

(e) Shims shall be limited to the minimum number required for leveling.

(f) Blocking shall be secured in accordance with recognized safe practice. Blocking shall not be secured with anything that can split the blocks, such as nails.

Note: Figure 34.23-2 illustrates acceptable methods to secure blocking.

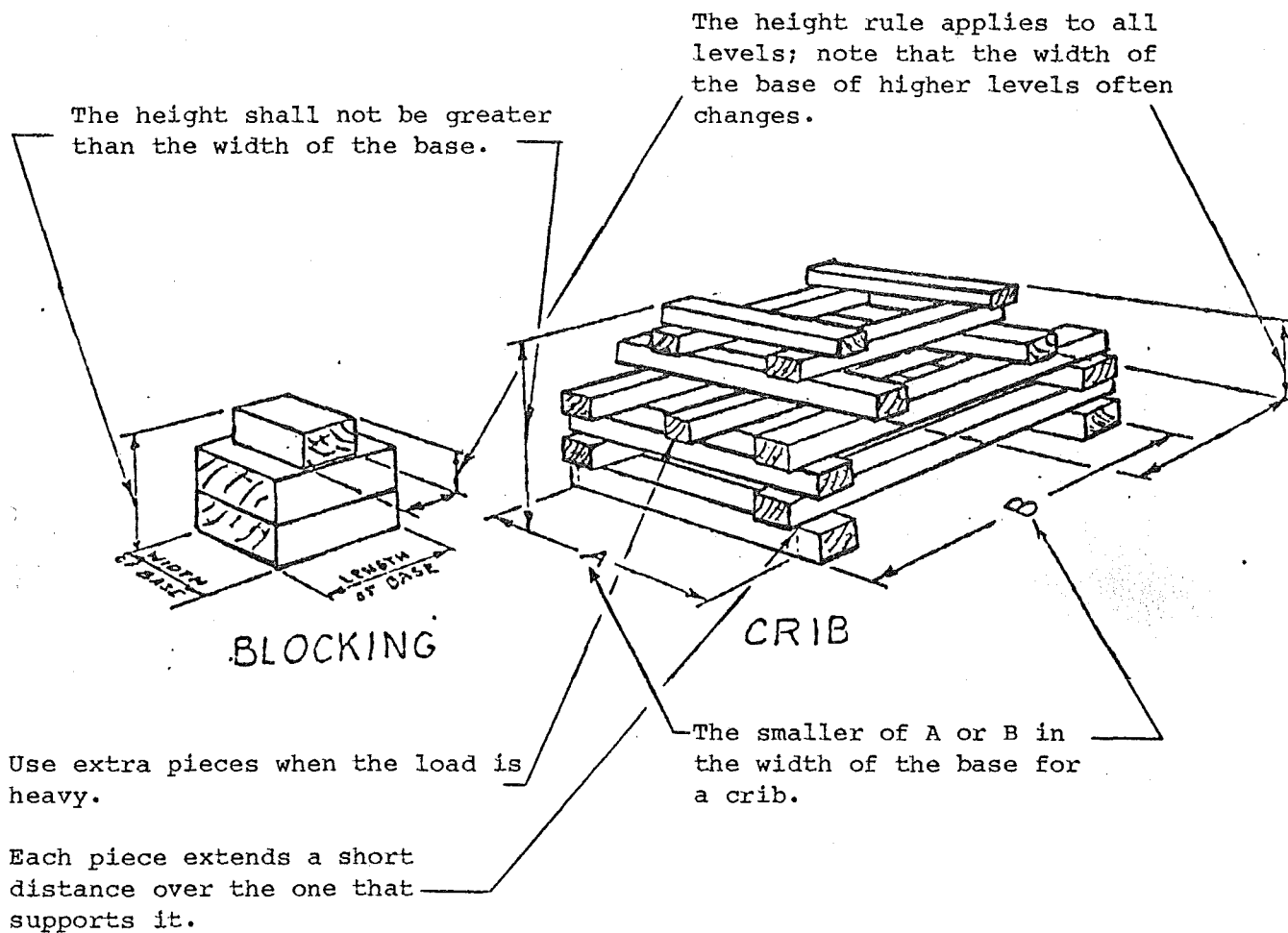


FIGURE 34.23-1
SYSTEMS OF BLOCKS

Do not secure blocking with anything that can split them, such as nails.

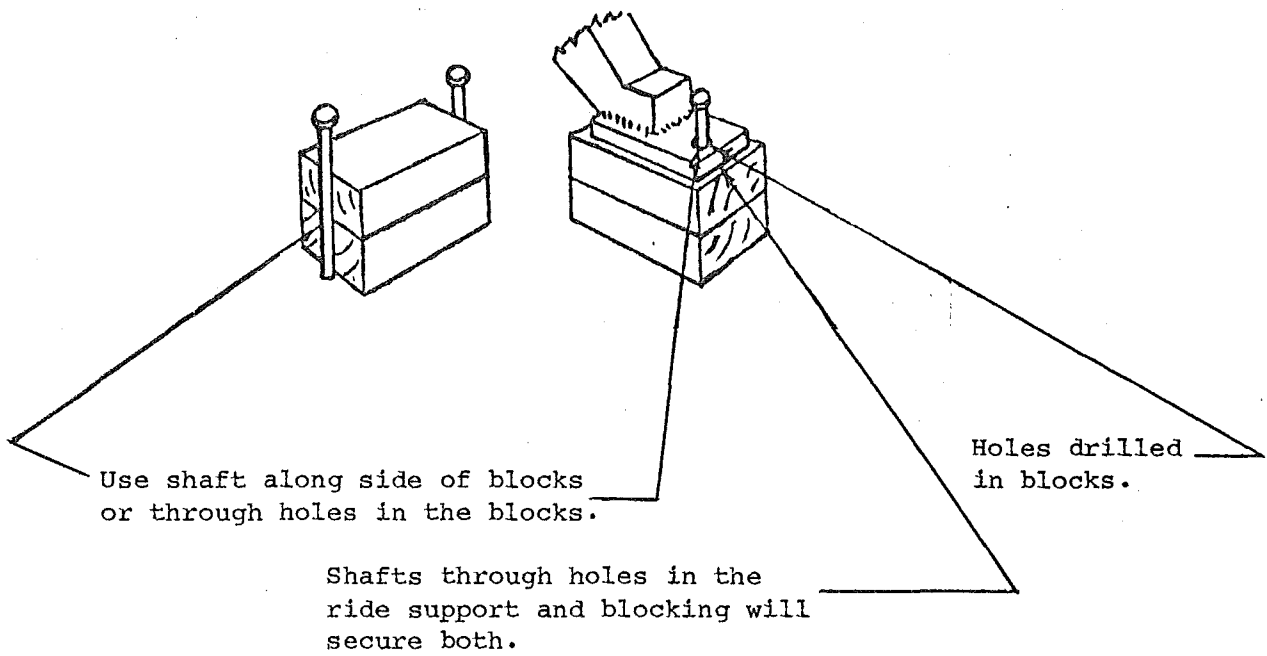


FIGURE 34.23-2
SECURE BLOCKING

(4) RESTRAINT. Amusement rides and structures shall be staked, bolted, guyed, wind braced or otherwise restrained in accordance with recognized safe practice to prevent horizontal movement, such as rotating off blocking during an emergency stop, or tipping over.

ILHR 34.24 ACCESS, EGRESS AND PASSAGEWAYS. (1) HAZARDS. Access to, egress from and passage through amusement rides, attractions and structures shall be free of hazards, including those resulting from emergency conditions.

(2) DESIGN LOADS. All stairways, ramps, platforms and passageways shall be designed and maintained to safely support a superimposed load of at least 100 pounds per square foot.

(3) GUARDRAILS. (a) 1. Guardrails shall be provided at all open sides of platforms and passageways which are more than 24 inches above any level to which a person may fall and to prevent contact with hazardous mechanisms.

2. Guardrails shall be provided between passenger-carrying devices and persons waiting on the platform or entranceway of a class 2, 3 or 4 ride.

(b) 1. Except as provided in subds. 2 and 3., guardrails shall be at least 42 inches high.

2. Guardrails less than 42 inches in height shall be approved if an equivalent degree of safety is established and the guardrails conform to criteria acceptable to the department.

Note: The department will accept guardrails that are designed in accordance with the criteria specified in the National Bureau of Standards publication NBSIR 76-1131--A Model Performance Standard for Guardrails or the American National Standards Institute Publication ANSI A12.1-1973 - Floor, and Wall Openings, Railings and Toeboards.

3. If the amusement ride or attraction must be modified to accommodate a 42-inch guardrail, the department may grant an exception until the amusement ride manufacturer approves the modification.

(c) The top member of the guardrail shall be rigid and smooth and capable of withstanding a minimum load of 200 pounds applied downward or horizontally.

Note: Ropes, chains and similar devices may not be used as guardrails. See s. ILHR 34.34 (2) (b).

(d) Guardrails shall be designed and constructed with a rigid intermediate barrier, or equivalent, capable of withstanding a minimum load of 100 pounds applied downward or horizontally.

Note: These are minimum standards for protecting adult frequenters. Guardrails should be constructed to discourage small children from climbing or swinging on, or passing through them.

(4) SURFACES FOR WALKING. (a) All stairways, ramps, platforms and passageways shall be kept free of debris, obstructions, projections, tripping hazards and other hazards.

(b) All stair treads, ramps and platforms shall have an abrasive or other type of slip-resistant surface.

Note: A coefficient of friction of 0.5 or greater is considered to be slip-resistant.

(c) Tripping hazards which cannot be avoided due to the design of the device shall be provided with handrails, contrasting colors, illumination, signs or other means that provide an equivalent degree of safety.

Note: The low rail of a bumper-car enclosure, electrical distribution boxes or guy wires are examples of these types of tripping hazards.

(d) Gaps between adjacent sections of fixed surfaces for walking shall not exceed one inch in width.

(e) Gaps between a fixed and a movable surface for walking or between 2 movable surfaces for walking shall not exceed 3 inches. The gaps shall be minimized by extending one surface under or over the other provided the extensions do not adversely affect the operation of the amusement ride or attraction or create a greater tripping hazard.

(5) SURFACES NOT INTENDED FOR WALKING. Covered areas not intended as surfaces for walking shall be fenced. The covers shall be designed and maintained to safely support a minimum load of 200 pounds.

Note: The centers of amusement rides, such as the "Tilt-a-whirl" or "Tip-Top" are examples of areas that must be covered and fenced. A guardrail may be used in lieu of the cover and fence.

(6) OVERHEAD CLEARANCE. (a) Except as provided in pars. (b) and (c), overhead clearance shall be not less than 6 feet 8 inches.

Note: This rule is intended to apply to all areas of amusement rides and attractions where the frequenters walk or stand or are capable of standing during operation of the amusement ride or attraction.

(b) If the amusement ride or attraction must be modified to provide 6 foot 8 inch headroom, the department may grant an exception until the manufacturer approves the modification.

(c) The department may accept lesser headroom clearances when the low overhead is part of the amusement ride or attraction; however, protection against head injuries shall be provided.

(7) STAIRS. (a) Tread width and riser height shall be of any combination that results in a stair angle between 30° and 40° to the horizontal. The riser height shall be at least 6 inches but not greater than 8 inches.

Note: The following table presents typical tread-riser combinations which satisfy this rule.

Angle to Horizontal	Rise (in inches)	Tread Run (in inches)
30° 35'	6-1/2	11
32° 08'	6-3/4	10-3/4
33° 41'	7	10-1/2
35° 16'	7-1/2	10-1/4
36° 52'	7-1/2	10
38° 29'	7-3/4	9-3/4
40° 00'	8	9-1/2

(b) 1. Except as provided in subd. 2., the difference in width between treads and the difference in height between risers shall not exceed 3/8-inch in any one flight of stairs.

2. To accommodate ground slopes, the riser distance from ground level to the lowest tread may be less than the rise of the other steps in the stairway.

(c) Stair treads shall be level in both directions except that a slight slope to improve drainage is acceptable.

(d) 1. Handrails shall be provided on both sides of all flights of stairs that have 3 or more risers.

2. The rails shall be located between 30 and 34 inches above the nose of the stair tread.

3. The top member of the handrail shall be rigid, smooth and capable of withstanding a minimum load of 200 pounds applied downward or horizontally.

Note: Ropes, chains and similar devices may not be used as handrails. See s. ILHR 34.34 (2) (b).

4. Handrails shall be designed and constructed with a rigid intermediate barrier, or equivalent, capable of withstanding a minimum load of 100 pounds applied downward or horizontally.

Note: These standards are minimum for protecting adult frequenters. Handrails should be designed and constructed to discourage small children from climbing or swinging on or passing through them.

(8) RAMPS. (a) Handrails shall be provided on both sides of all ramps with a slope of more than 1:12. The handrails shall be located between 30 and 34 inches above the ramp surface.

(b) 1. Except as provided in subd. 2., ramps with a slope of 1:4 shall not exceed 24 inches in width.

2. If the amusement ride or attraction has a ramp with a slope of 1:4 and a width greater than 24 inches, the department may grant an exception until the manufacturer or owner implements a change to comply with subd. 1.

(c) 1. Except as provided in subd. 2., ramps shall not have a slope greater than 1:4.

2. If the amusement ride or attraction has a ramp slope steeper than 1:4, the department may grant an exception until the manufacturer or owner implements a change to comply with subd. 1.

ILHR 34.25 GUARDING. (1) GENERAL. All hazardous parts, including but not limited to pinch points, shear points and ingoing nips, of amusement rides and attractions shall be enclosed, barricaded or otherwise arranged to effectively prevent injury in accordance with recognized safe practice.

(2) GUARD REMOVAL. Guards removed for any purpose shall be replaced before normal operation is resumed.

(3) HAIR AND CLOTHING. Hair guards to prevent hair or clothing from being caught in operating equipment of ferris wheels shall be provided.

(4) WHEELS AND LEVERS. Wheels and levers used by the passenger in the control of the action of the amusement ride or attraction shall be designed and maintained to prevent pinches, strains, abrasions and body actions that could result in injuries. Wheels and levers shall be padded and have a solid center in lieu of spokes.

(5) HOT SURFACES. Surfaces having a temperature in excess of 140 degrees F shall be guarded or located to prevent bodily contact.

ILHR 34.26 SPECIAL CONTROLS. (1) WHEN REQUIRED. When the operator of an amusement ride cannot clearly see all loading and unloading areas, special devices shall be provided or special procedures shall be followed.

(2) SPECIAL DEVICE. (a) Class 1 amusement rides that have loading or unloading areas which cannot be clearly seen by the operator shall be equipped with a bell or similar audible warning device. The warning device shall be sounded prior to each operation.

(b) Class 2, 3 and 4 amusement rides that have loading or unloading areas which cannot be clearly seen by the operator shall be equipped with mirrors or other devices which provide the operator with full visibility of all such areas, or shall be operated only when an authorized attendant is stationed so that all loading and unloading areas are visible to the attendant.

(3) SPECIAL PROCEDURES. When an attendant is required, communication with the operator shall be made when it is safe to start the amusement ride or attraction, or a control interlock that prevents the amusement ride or attraction from starting until it is actuated shall be provided.

ILHR 34.27 IDENTIFICATION. (1) GENERAL. Unique identification of each amusement ride and attraction and each passenger-carrying device, and operational information to facilitate the department's inspection shall be provided as required under this section.

(2) INFORMATION REQUIRED. (a) Information required in this section shall be clear, legible and permanent, such as die-stamped on the frame or included on a permanent plate securely attached to the amusement ride or attraction.

(b) Amusement rides and attractions shall be identified by their original name, model number and serial number. In the absence of such information, the owners shall provide unique identification of their own choice sufficient to properly identify the amusement ride or attraction.

(c) Each passenger-carrying device on an amusement ride or attraction shall be identified by a unique symbol. The symbol need not be conspicuous to the rider.

(d) The maximum number of passengers and speed of operation, as specified by the manufacturer, shall be provided. When the manufacturer's specification is not known, the owner shall provide the values from an analysis or other means approved by the department. The department may accept capacity and speed proven by 7 years of acceptable field service of the amusement ride or attraction or similar amusement rides or attractions.

(e) When available, the manufacturer's name and address shall be provided.

ILHR 34.28 DESIGN AND CONSTRUCTION OF TENTS. The design and construction of tents shall comply with the requirements specified in ch. ILHR 62, subch. III.

ILHR 34.285 CHAIR LIFTS. (1) SAFETY BAR OR BELT. Each carrier of a lift system used in conjunction with an amusement ride or attraction shall be equipped with a safety bar or belt that will not open under forward pressure.

(2) DESIGN, CONSTRUCTION AND OPERATION. Chairlift and gondola systems shall be designed, constructed and operated as specified in ch. ILHR 33 for the actual use condition including operating the system at full load condition while traveling in both directions.

SUBCHAPTER VI - ERECTION, OPERATION AND MAINTENANCE

ILHR 34.29 LOCATION. (1) STABILITY. Amusement rides and attractions and structures shall not be located where water, unstable soil or similar conditions could cause movement or tip-over.

(2) ELECTRIC POWER LINES. Amusement rides and attractions and structures, and the machinery used to erect them shall be located to provide at least 10 feet of clearance from any uninsulated overhead electric power line energized to more than 50 volts, but less than or equal to 50,000 volts. For lines energized to more than 50,000 volts, the minimum clearance shall be increased .4-inch for each 1,000 volts over 50,000.

Note: See ch. ILHR 16 and s. 1910.181 (j) (5) of chs. Ind 1000-2000.

(4) DISTANCE BETWEEN AMUSEMENT RIDES AND OTHER OBJECTS. (a) The minimum distance between amusement rides shall be such that the closest points on the passenger-carrying devices on adjacent amusement rides are at least 6 feet apart when both are in the position that brings them closest to each other.

(b) The minimum distance between amusement rides and fixed objects or fences shall be at least 6 feet.

ILHR 34.30 ASSEMBLY AND DISASSEMBLY. (1) SUPERVISION. The assembly and disassembly of an amusement ride or attraction or temporary structure shall be done by or under the supervision of an authorized person.

(2) PERSONS IN WORK AREA. Unauthorized persons shall not be permitted in the work area.

ILHR 34.31 CONTROL OF OPERATION. (1) AUTHORIZED OPERATORS. Operation of amusement rides, other than passenger-operated or controlled rides, shall be by authorized persons at least 18 years of age.

(a) 1. Except as provided in subd. 2., amusement ride operators shall be in the immediate vicinity of the operating controls and shall keep the controls under their direct supervision at all times during normal operations and shall watch to prevent dangerous actions by the riders and to detect apparent mechanical failure.

2. Electrically-powered, coin-operated class 1 amusement rides having a maximum capacity of 6 passengers may be operated without an authorized operator.

(b) Amusement rides designed to carry children weighing 75 pounds or less shall be provided with a minimum of one amusement ride operator per 2 amusement rides during the operating cycle of the amusement ride provided the following conditions are satisfied:

1. The number of passengers on both amusement rides does not exceed 25% of the total capacity of both amusement rides; and

2. The maximum distance between the controls of the 2 amusement rides does not exceed 15 feet.

(c) When the number of passengers of both amusement rides specified in par. (b) exceeds 25% of the total capacity of both amusement rides, one amusement ride operator may supervise 2 or more amusement rides provided no more than one amusement ride per operator is operating at any one time.

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

(e) Provisions shall be incorporated, including the use of lockout devices, to render amusement rides inoperable when persons are working on the rides.

(2) PASSENGER CONTROLLED AMUSEMENT RIDES. (a) Passenger-operated or controlled amusement rides shall have the controls located where they are readily available for use whenever the amusement ride is in operation.

(b) Clear verbal or written instructions or both for controlling the amusement ride shall be given to all passengers.

(3) ACCIDENTAL OR MISCHIEVIOUS OPERATION. (a) A means to minimize accidental or mischievious operation of amusement rides shall be provided.

(b) Unattended amusement ride controls shall be arranged to minimize accidental or mischievious operation.

(4) AUTOMATIC RESTART PROHIBITED. All amusement rides and attractions constructed after the effective date of this section shall be equipped and maintained with devices to prevent automatic restart after power failure.

Note: Examples of the devices include, but are not limited to, magnetic starters, magnetic switches and pneumatic clutches.

ILHR 34.32 ELECTRICAL. (1) GENERAL. (a) The installation of electric and communication conductors and equipment in conjunction with amusement rides and attractions shall comply with the provisions of ch. ILHR 16.

Note: The National Fire Protection Association Standard 70 - National Electrical Code (NEC) is adopted by reference in ch. ILHR 16.

(b) Live parts of electric 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 that is accessible only to authorized persons;
or

2. Elevated 8 feet or more above the ground, floor or other level accessible to frequenters.

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

(d) Any equipment or wiring known to be defective so as to endanger life or property shall be promptly repaired, permanently disconnected or isolated until repairs can be made.

(e) Cables and conductors entering boxes or fittings shall be protected from abrasion. Openings through which cables or conductors enter shall be restricted to that size necessary for the cable or conductor size.

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

(b) In locations where vehicles and frequenters regularly travel, cables shall be protected with mats, planks or other approved devices.

Note: See s. ILHR 34.29 (2) for additional information.

(3) WIRING IN TENTS. A vertical clearance of at least 8 feet shall be maintained between open conductors and the floor or other levels in a tent accessible to frequenters.

(4) GROUNDING. Noncurrent-carrying metal parts of equipment, raceways, and other enclosures shall be grounded by an equipment grounding conductor contained within the same raceway, cable, or cord or otherwise run with the circuit conductors.

Note: See NEC 250 for further information.

(5) OVERCURRENT PROTECTION OF CONDUCTORS AND MOTORS. (a) Conductors shall be protected in accordance with their ampacities as specified in NEC 240.

Note: See Appendix for partial reprint of NEC 240.

(b) Motors shall be protected as specified in NEC 430.

(6) MASTER SWITCH. Each electrically operated amusement ride shall be provided with a disconnect switch or circuit breaker located within reach of the operator to permit disconnecting or shutting off the electrical power to the amusement ride.

(7) SPLICES. The repair of cables or conductors, No. 14 or larger, is permitted if the completed splice retains the insulation, other sheath properties and usage characteristics of the cable or conductor being spliced.

ILHR 34.33 LIGHTING OF EXITS AND PASSAGEWAYS. Access to and exits from amusement rides and attractions and temporary structures shall, while in operation or occupied, be provided with illumination by natural or artificial means of not less than 5 footcandles measured at all walking surface levels.

ILHR 34.34 PUBLIC PROTECTION. (1) GENERAL. (a) Except as provided in par (b), amusement rides and attractions shall be fenced, barricaded or otherwise arranged in accordance with recognized safe practice so that the public is effectively prevented from entering hazardous areas.

(b) Class 1 amusement rides with stationary platforms need not be provided with perimeter fencing or barricades.

(2) LOADING AND UNLOADING. Loading and unloading areas which are an integral part of the amusement rides and attractions shall be separated from moving parts by barriers, guardrails or devices having an equivalent degree of safety.

(b) A flexible barrier, such as a rope or chain, may be used to prevent access to the passenger-carrying devices provided the barrier is no longer than necessary and is controlled by an authorized attendant.

ILHR 34.35 FIRE EXTINGUISHERS. Approved fire extinguishers having a minimum 10 BC rating shall be provided at each amusement ride powered by an internal combustion engine.

ILHR 34.36 FLAMMABLE AND COMBUSTIBLE LIQUIDS AND GASES. Storage and use of flammable and combustible liquids and liquefied petroleum gases shall comply with requirements of chs. Ind 8 and ILHR 11.

Note: See Appendix A for a partial reprint of those portions of ch. Ind 8 pertaining to amusement rides and attractions.

ILHR 34.37 CLEANLINESS. (1) REFUSE CONTAINERS. Refuse containers shall be provided in and around all amusement rides and attractions and temporary structures. Accumulations of trash or refuse shall be removed.

(2) SANITARY CONDITIONS. All parts of amusement rides and attractions and temporary structures used by passengers or customers shall be maintained in a clean and sanitary condition.

ILHR 34.38 MAINTENANCE, REPAIR AND MODIFICATION. (1) GENERAL. (a) Amusement rides and attractions and structures shall be maintained, repaired and modified in accordance with recognized safe practices. Employes and frequenters shall be protected from dangerous radiation, flying or falling objects and other hazards associated with repair work.

(b) Improperly maintained, repaired or modified amusement rides shall be assigned to class 4 as specified in s. ILHR 34.03 (5) and operation of the amusement rides shall be prohibited until tests for serviceability as specified in s. ILHR 34.16 are conducted and the results accepted by the department.

(2) CORRECTION OF DEFECTS. (a) Defective, improper, worn or missing parts shall be replaced or repaired.

(b) Maintenance, repair and replacement parts shall be of proper quality material and size. Fasteners, ungraded bolts, wire and similar types of material shall be used only for their intended purposes.

(c) Rotted, split and otherwise structurally unsound material shall be replaced.

(d) Wire rope shall be serviceable and free of sharp ends. Wire ropes shall be replaced under any of the following conditions:

1. The number of broken wires in the length of one lay exceed the values specified in Table 34.38;

TABLE 34.38

Rope Type	Maximum Allowable Number of Broken Wires
6 x 7	4
6 x 19	6
6 x 37	10

2. More than one valley break occurs in one rope lay;

3. More than 1/3 of the original diameter of the outside wires is lost due to abrasion, scuffing or peening;

4. There is evidence of deterioration due to corrosion;

5. Burning, kinking, knotting, crushing or other damage which changes the structure of the rope occurs, or

6. Reduction in rope diameter occurs at any point on the rope to less than 94% of the original nominal diameter.

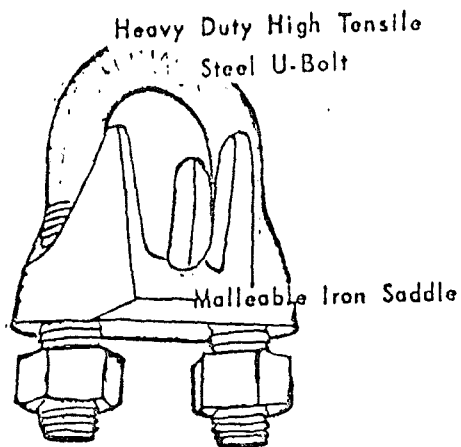
(e) Wire ropes shall be terminated using wire rope clips or other approved devices. Wire rope clips shall be installed as illustrated in Figure 34.38-1 or in an equivalent manner.

(f) All required safety pins and wedges shall be installed and shall be safety clipped.

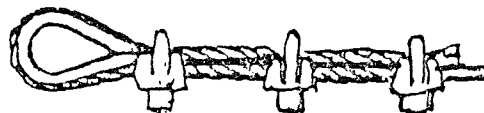
(g) Safety cables, or their equivalent, shall be provided in accordance with recognized safe practice to prevent injury resulting from the failure of hangers, door hinges and similar parts. Safety cables shall be secured in a manner to maintain their design strength. The clipping of wire rope safety cables shall be as illustrated in Figure 34.38-2 or in an equivalent manner.

(h) Terminating ends of hydraulic and pneumatic lines shall be provided with restraints to prevent whipping in accordance with recognized safe practice.

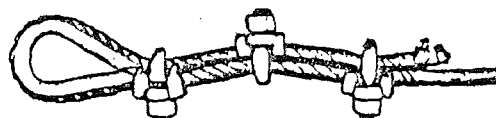
(3) MODIFICATION. Modifications required by the manufacturer to improve amusement ride and attraction safety shall be made.



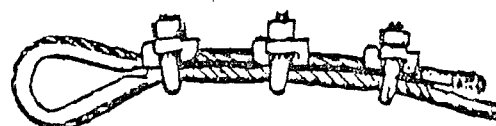
Attaching by CLIPPING



RIGHT WAY



WRONG WAY: clips staggered



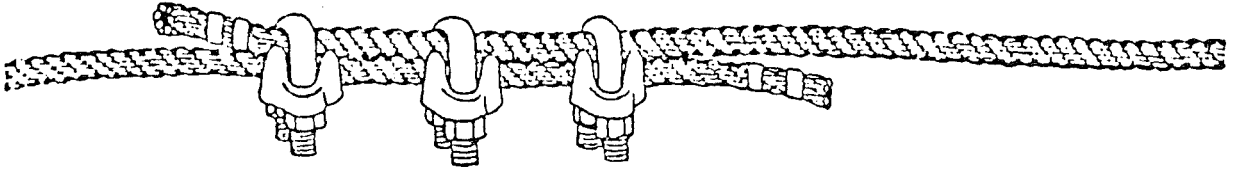
WRONG WAY: clips reversed

WIRE ROPE CLIP REQUIREMENTS

ROPE DIA.	MINIMUM CLIPS REQUIRED	MINIMUM REQUIRED CLIP SPACING
1/8"	2	3"
3/16"	2	3"
1/4"	2	3-1/4"
5/16"	2	3-1/4"
3/8"	2	4"
7/16"	3	4-1/2"
1/2"	3	5"
9/16"	3	5"
5/8"	3	5-3/4"
3/4"	4	6-3/4"
7/8"	4	8"
1"	4	8-3/4"
1-1/8"	5	-----

FIGURE 34.38-1
WIRE ROPE CLIPS

WRONG



RIGHT

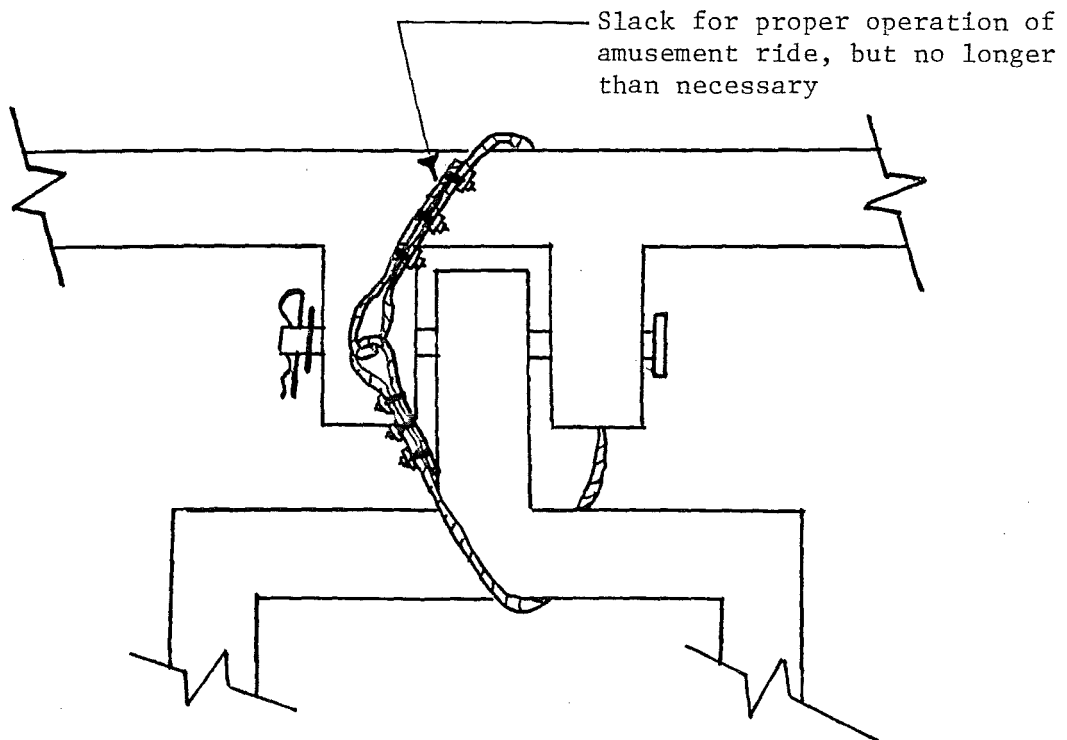
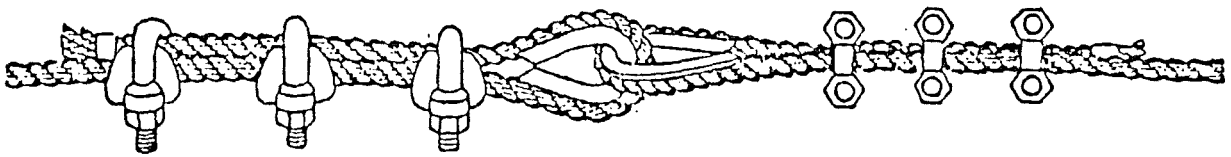
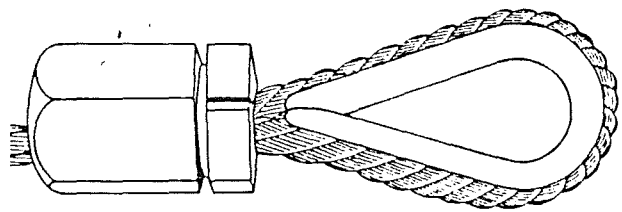
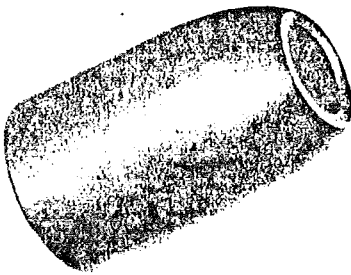


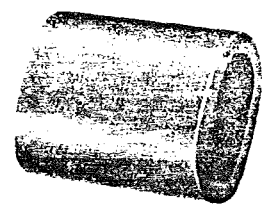
FIGURE 34.38-2
SAFETY CABLES



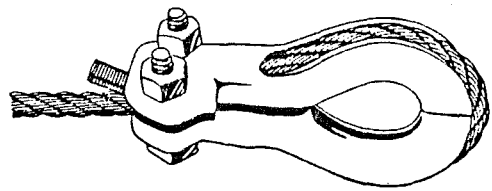
COLLET CONNECTION



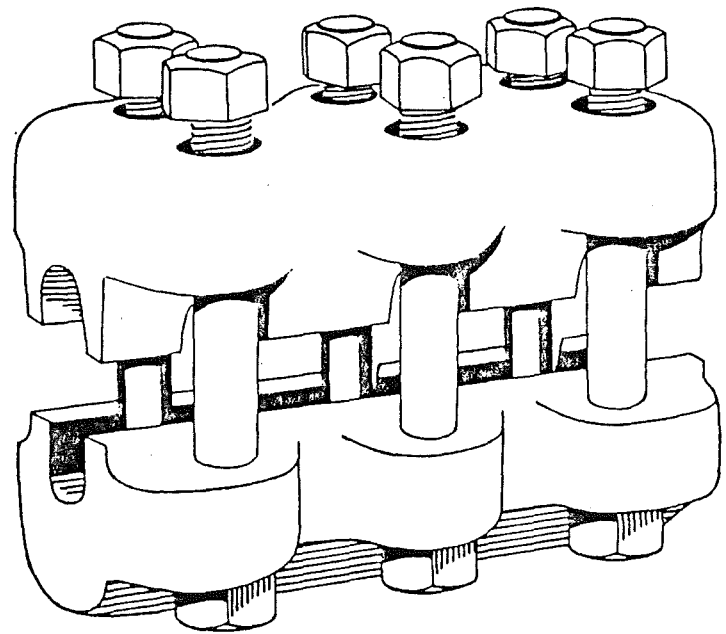
STEEL SWAGING SLEEVE



NON-TAPERED STEEL SLEEVE



CLAMP AND THIMBLE CONNECTION



DOUBLE BASE CLAMP

FIGURE 34.38-2 continued
WIRE ROPE FASTENERS

ILHR 34.39 WELDING. Welding of structural members and other critical parts of amusement rides and attractions shall comply with the requirements of s. ILHR 53.53.

Note: See Appendix A for reprint of s. ILHR 53.53.

ILHR 34.40 AIR COMPRESSORS AND EQUIPMENT. Air compressors, air compressor tanks and related equipment shall be constructed, tested, maintained and inspected as specified in chs. ILHR 41 and 42.

ILHR 34.41 ACCIDENT REPORTING. Injuries to frequenters that require treatment by licensed professional medical personnel or are recorded at a first aid station shall be reported to the department within 10 days of the injury. A copy of the owner's report to the insurance carrier is sufficient if it includes suggestions for prevention of similar accidents.

Note: See Appendix A for a reprint of Form SB-211 - Amusement Ride Accident Report.

ILHR 34.42 WIND AND STORM HAZARDS. An amusement ride which is exposed to wind or storms shall not be operated under dangerous weather conditions except to release or discharge occupants.

ILHR 34.43 RESPONSIBILITY OF SPONSORS. Any person, group or business contracting or leasing for the installation and use of amusement rides or attractions shall carry a condition in a contract or agreement that the amusement ride or attraction owner meets the conditions of this chapter prior to the opening for use by frequenters.

APPENDIX A

The material contained in this Appendix is for clarification purposes only. The notes, illustrations, diagrams and similar material are numbered to correspond to the number of the rule as it appears in the text of the code.

A34.04 (2) INFORMATION REQUIRED. The following form (SBD-5292) is referred to in s. ILHR 34.04 (2) (e) Note. Copies of this form are available from the Bureau of Safety Inspection, Division of Safety and Buildings, P.O. Box 7969, Madison, Wisconsin 53707.

WISCONSIN DEPT. OF INDUSTRY LABOR & HUMAN RELATIONS
DIVISION OF SAFETY & BUILDINGS
P.O. BOX 7969, MADISON, WISCONSIN 53707

CDD/34/FD

March 85

AMUSEMENT RIDE REGISTRATION

Wisconsin Administrative Code Ind 47.03(1) & 69.07:
All amusement rides shall be registered with the department
each calendar year.

NAME OF RIDE OPERATION	NAME OF OWNER
BUSINESS ADDRESS	ADDRESS
PHONE	PHONE

INSURANCE: Evidence of Worker's Compensation and Liability In-
surance (Certificate of Insurance is NOT Required)- Proof of
ability to pay damages will be accepted in lieu of a liability
policy.

COMPANY	POLICY NO.
WORKERS COMP.	
LIABILITY	

Worker's compensation insurance can be obtained from almost any agency at uniform rates that have
been established by the Commissioner of Insurance. An all state endorsement on your present policy
is not acceptable unless a schedule of payroll in Wisconsin is filed with the Compensation Rating
Bureau, 732 N. Jackson St. Milwaukee, Wisconsin, 53202. PHONE; (414) 276-5476.

An employer who has any difficulty in obtaining a policy may apply to the Compensation Rating
Bureau, for coverage in the Wisconsin Rejected Risk Pool, at the same rates as other coverage.

ROUTE OR ITINERARY - THIS INFORMATION MUST BE PROVIDED OR REG-
ISTRATION WILL NOT BE PROCESSED.

DATE	LOCATION	ADDRESS	CITY

FEEs: NUMBER OF RIDES TO BE REGISTERED _____

REGISTRATION FEE ATTACHED (\$35.00/RIDE) _____
Registration tags will be sent upon receipt of completed forms
and appropriate fees.

RIDE IDENTIFICATION: Complete the enclosed listing of rides
by name, serial number and owner. Also provide date of latest
test of critical parts for class 2 and 3 rides.

MARCH 1985

WISCONSIN DEPARTMENT OF INDUSTRY LABOR AND HUMAN RELATIONS

DIVISION OF SAFETY & BUILDINGS
AMUSEMENT RIDE REGISTRATION LIST

RIDE NAME	SERIAL NO.	OWNER	DATE OF LAST TEST**	NAME OF TESTING AGENCY	REGISTRATION NUMBER (To be assigned by dept.)
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					

-37-

CDD/34/ED

** CRITICAL PARTS OF CLASS 2 & 3 RIDES MUST BE NON-DESTRUCTIVELY TESTED EVERY 3 YEARS (IND 47.11(2) DILHR-SBD-5292(R.03/85)

A34.11 PETITION FOR VARIANCE. The following form (SB-8) is referred to in s. ILHR 34.11. Copies of this form are available from the Division of Safety and Buildings, P.O. Box 7969, Madison, Wisconsin 53707.

PETITION FOR MODIFICATION
OF A RULE IN THE
WISCONSIN ADMINISTRATIVE CODE

WISCONSIN DEPARTMENT OF
INDUSTRY, LABOR AND HUMAN RELATIONS
DIVISION OF SAFETY & BUILDINGS
P.O. BOX 7969, MADISON, WI 53707

OFFICE USE ONLY		
Petition No.		
E-Number		
E-		

Name of Owner	Building Occupancy or Use	Agent, Architect or Engineering Firm	
Company	Tenant Name, if any	Street & No.	
Street & No.	Building Location, Street & No.	City	State & Zip
City	State & Zip	City	County Phone

Plan Number(s) >
-IF KNOWN-

1. Rule Ind. _____ of the Wisconsin Administrative code cannot be entirely satisfied because:

2. In lieu of complying exactly with the rule, the following alternative is proposed as a means of providing an equivalent degree of safety:

3. Supporting arguments are:

VERIFICATION BY OWNER-PETITION IS VALID ONLY IF NOTARIZED
For Fee Information See Ind. 69.15 or Contact The Department at (608) 266-1835

_____ being duly sworn, says he is petitioner herein, thus he has read the foregoing petition and that the same is true, as he verily believes.

Signature of Owner
Subscribed and sworn to me this _____ day of 19_____,
_____, County, Wisconsin.

Notary Public
My commission expires: _____

OFFICE USE ONLY		
Date Received	Amount Paid	Receipt No.
Department Action		
Office of The Secretary	Date	

A34.17 (1) Balanced Load Test. 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, the total weight can be estimated from hip width vs. body weight data if the dimensions of the space are known.

Figure 1 represents 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 s. ILHR 34.17.

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

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.

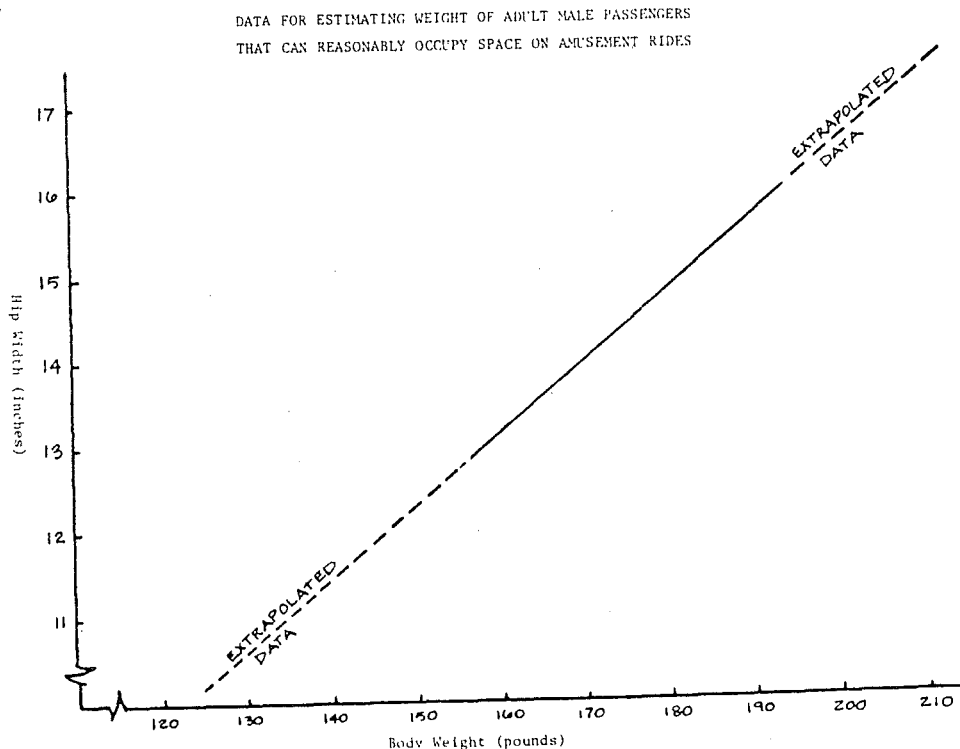


Fig. 1

A34.32 (5) Overcurrent protection. The following is a partial reprint and explanation of NEC 240:

240. Overcurrent protection.

240-1. This article provides for the general requirements for overcurrent protection and overcurrent protective devices not more than 600 volts, nominal.

240-2. Protection of equipment. Equipment shall be protected against overcurrent in accordance with the article in this code covering the type of equipment as specified in the following list:

- 1. Electric signs and outline lightingNEC 600
- 2. GeneratorsNEC 445
- 3. Motors, motor circuits and controllers . . .NEC 430

240-3. Protection of conductors - other than flexible cords and fixture wires. Conductors other than flexible cords and fixture wires shall be protected against overcurrent in accordance with their ampacities as specified in Tables 310-16 through 310-19.

240-4. Protection of fixture wires and cords. Flexible cord, including tinsel cord and extension cords shall be protected against overcurrent in accordance with their ampacities as specified in appropriate tables.

240-6. Standard ampere ratings. The standard ampere ratings for fuses and inverse time current breakers shall be considered 15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100, 125, 150, 175, 200, etc.

240-30. Overcurrent devices shall be enclosed in cabinets or cutout boxes.

240-40. Disconnecting means shall be provided on the supply (line) side of all fuses or thermal cutouts in circuits of over 150 volts to ground and cartridge fuses in circuits of any voltage, where accessible to other than qualified persons, so that each individual circuit contains fuses or thermal cutouts can be independently disconnected from the source of electric energy.

(Exception: A single disconnecting means shall be permitted on the supply side of more than one set of fuses as provided in section 430-22 for group operation of motors.)

240-50. General.

(a) Maximum voltage. Plug fuses and fuseholders shall not be used in circuits exceeding 125 volts between conductors.

(b) Marking. Each fuse, fuseholder and adaptor shall be marked with its ampere ratings.

(c) Hexagonal configuration. Plug fuses of 15-ampere and lower rating shall be identified by a hexagonal configuration of the window, cap, or other prominent part to distinguish them from fuses of higher ampere ratings.

(d) No live parts. Plug fuses, fuseholders, and adapters shall have no exposed live parts after fuses and adapters have been installed.

(e) Screw shell. The screw shell of a plug-type fuseholder shall be connected to the load side of the circuit.

240-51. Edison-base fuses.

(a) Classification. Plug fuses of the Edison-base type shall be classified at not over 125 volts and 0 to 30 amperes.

(b) Replacement only. Plug fuses of the Edison-base type shall be used only for replacements in existing installations where there is no evidence of overfusing or tampering.

240-52. Edison-base fuseholders. Fuseholders of the Edison-base type shall be installed only where they are made to accept Type S fuses by the use of adapters.

240-53. Type S fuses. Type S fuses shall be of the plug type and shall comply with (a) and (b) below.

(a) Classification. S fuses shall be classified at not over 125 volts and 0 to 15 amperes, 16 to 20 amperes, and 21 to 30 amperes.

(b) Noninterchangeable. Type S fuses of an ampere classification as specified in (a) above shall not be interchangeable with a lower ampere classification. They shall be so designed that they cannot be used in any fuseholder other than a Type S fuseholder or a fuseholder with a Type S adapter inserted.

240-54. Type S fuses, adapters, and fuseholders.

(a) To fit Edison-base fuseholders. Type S adapters shall fit Edison-base fuseholders.

(b) To fit type S fuses only. The S fuseholders and adapters shall be so designed that either the fuseholder itself or the fuseholder with a Type S adapter inserted cannot be used for any fuse other than a Type S fuse.

(c) Nonremovable. Type S adapters shall be so designed that once inserted in a fuseholder, they cannot be removed.

(d) Nontamperable. Type S fuses, fuseholders, and adapters shall be so designed that tampering or shunting (bridging) would be difficult.

(e) Interchangeability. Dimensions of Type S fuses, fuseholders, and adapters shall be standardized to permit interchangeability regardless of the manufacturer.

240-60. General.

(b) Noninterchangeable - 0-6000 ampere cartridge fuseholders shall be so designed that it will be difficult to put a fuse of any given class into a fuseholder that is designed for a current lower or voltage higher, than that of the class to which it belongs. Fuseholders for current-limiting fuses shall not permit insertion of fuses that are not current limiting.

(c) Marking. Fuses shall be plainly marked, either by printing on the fuse barrel or by a label attached to the barrel, showing the following: (1) Ampere rating; (2) voltage rating; (3) name or trademark of the manufacturer.

240-61. Classification. Cartridge fuses and fuseholders shall be classified according to voltage and amperage ranges. Fuses rated 600 volts, nominal, or less shall be permitted to be used for voltages at or below their ratings.

240-80. Circuit breakers. Shall be trip free and capable of being closed and opened by manual operation. Their normal method of operation by other than manual means such as electrical or pneumatic shall be permitted if means for manual operation is also provided.

240-81. Indicating. Circuit breakers shall clearly indicate whether they are in the open "off" or closed "on" position. Where circuit breaker handles on switchboards or in panelboards are operated vertically rather than rotationally or horizontally, the "up" position of the handle shall be the "on" position.

240-83. Marking.

(a) Circuit breakers shall be marked with their ampere rating in a manner that will be durable and visible after installation. Such marking shall be required to be visible after removal of a trim or cover.

A 34.36 FLAMMABLE AND COMBUSTIBLE LIQUIDS. The following is a reprint of those portions of ch. Ind 8 which pertain to amusement rides and devices:

Ind 8.003 DEFINITIONS. As used in this chapter, the following terms are defined to be:

- (3) "Approved" means being acceptable to the department.

- (19) "Combustible liquid" means a liquid having a flash point at or above 100 degrees F. Combustible liquids are subdivided as follows:
 - (a) Class II liquids include those having flash points at or above 100 degrees F. and below 200 degrees F.

 - (b) Class IIIA liquids include those having flash points at or above 140 degrees F. and below 200 degrees F.

 - (c) Class IIIB liquids include those having flash points at or above 200 degrees F. This chapter does not cover Class IIIB liquids. Where the terms "Combustible Liquids" or "Class III Liquids" are used in this chapter they mean Class IIIA liquids only.

- (37) "Flammable liquid" means a liquid having a flash point below 100 degrees F and having a vapor pressure not exceeding 40 pounds per square inch (absolute) at 100 degrees F and is known as a Class I liquid. The volatility of liquids is increased when artificially heated to temperatures equal to or higher than their flash points. When so heated Class II and III liquids are subject to the applicable requirements for Class I or II liquids. This chapter may also be applied to high flash point liquids when so heated even though these same liquids when not heated are outside of its scope. Class I liquids are subdivided as follows:
 - (a) Class IA includes those liquids having flash points below 73 degrees F and having a boiling point below 100 degrees F.

 - (b) Class IB includes those liquids having flash points 73 degrees F and having a boiling point at or above 100 degrees F.

 - (c) Class IC includes those liquids having flash points at or above 73 degrees F and below 100 degrees F.

- (38) "Flash point" means the minimum temperature at which a flammable or combustible liquid will give off sufficient flammable vapors to form an ignitable mixture with air near the surface of the liquid or within the vessel.

- (63) "Marine service station" means that portion of a property where liquids used as fuels are stored and dispensed from fixed equipment on shore, piers, wharves or floating docks into the fuel tanks of self-propelled craft, and includes all facilities used in connection with them.

- (86) "Safety can" means an approved container, of not more than 5 gallons capacity, having a spring-closing lid and spout cover and so designed that it will safely relieve internal pressure when subjected to fire exposure.

GENERAL PROVISIONS

Ind 8.15 GENERAL PROVISIONS FOR SALE, PURCHASE, DISPENSING OR USE OF FLAMMABLE LIQUIDS. (1) LABELING. No sale or purchase of any Class I, II or III liquids shall be made in containers, unless such containers are clearly marked with the name of the product.

(2) CONTAINERS. (a) A Class I flammable liquid when used in starting an engine or as a fuel for a small heating appliance, lighting appliance, power tool or gasoline engine shall be dispensed only from an approved, properly identified safety can or screwed cover spout can approved for that specific use.

(b) No dispensing of any liquids having a flash point of less than 100 degrees F shall be made into portable containers or portable tanks unless that such container or tank is substantially a bright red color, is listed or classified by Underwriter's Laboratory (UL), has a tight closure with screwed or spring cover, and is fitted with a spout or so designed that the contents can be poured without spilling.

(c) No kerosene, fuel oil or similar liquids having a flash point of 100 degrees F or more shall be filled into any portable container or portable tank colored red.

Note: See s. 168.11, Stats. for additional requirements.

(3) DISPENSING WHILE ENGINE IS RUNNING. A Class I flammable liquid shall not be dispensed into the fuel supply tank of any type internal combustion engine while the engine is running.

(4) REPAIR AND MAINTENANCE, SOURCES OF IGNITION. Repair and maintenance work involving a possible source of ignition shall not be performed in a room or area containing or likely to contain an ignitable mixture of hydrocarbon vapors and air.

(5) DEGREASING AND CLEANING. A Class I flammable liquid shall not be used for degreasing or cleaning any engine, machine, equipment or part thereof, or for cleaning a floor, pit, or any part of a building or premises.

(6) SATURATED CLOTHING. Clothing saturated with a Class I or II liquid shall not be worn longer than the time required for removal and shall not be worn or taken into a building where a source of ignition exists.

(7) DISPENSING FROM TANK VEHICLE TO SUPPLY TANK. Class I flammable liquids shall not be dispensed from a tank vehicle into the fuel supply tank of any type of internal combustion engine.

Ind 8.16 RACK TRACK FUELING STATIONS. Tanks of racing vehicles shall be filled from safety cans, or pumps, or approved systems or approved containers. During a race in which a vehicle is competing, it may be refueled while its engine is running. Signs prohibiting smoking in fueling areas shall be posted and an approved fire extinguisher of at least 20 BC classification shall be provided at each fueling location.

Ind 8.176 OILY WASTE. Oily waste and oily rags, when not in actual use during the day, shall be kept in metal or other noncombustible waste cans with tightly fitting lids.

CONTAINER AND PORTABLE TANK STORAGE

Ind 8.31 [4-1] SCOPE. (1) [4-1.1] APPLICATION. This subchapter shall apply to the storage of liquids, including flammable aerosols, in drums or other containers not exceeding 60 gallons individual capacity and portable tanks not exceeding 660 gallons individual capacity and limited transfers incidental thereto.

(2) [4-1.2] EXCEPTIONS. This section shall not apply to the following:

(b) Liquids in the fuel tanks of motor vehicles, aircraft, boats or portable or stationary engines.

Ind 8.315 [4-2] DESIGN, CONSTRUCTION AND CAPACITY OF CONTAINERS. (1) [4-2.1] CONTAINER DESIGN. Only approved containers and portable tanks shall be used. Metal containers and portable tanks meeting the requirements of, and containing products authorized by the department, shall be acceptable. Polyethylene containers and drums and plastic containers meeting the requirements of and containing products authorized by nationally recognized standards acceptable to the department shall be acceptable.

(2) [4-2.2] VENTING. Each portable tank shall be provided with one or more devices installed in the top with sufficient emergency venting capacity to limit internal pressure under fire exposure conditions to 10 psig, or 30 percent of the bursting pressure of the tank, whichever is greater.

(3) [4-2.3] CONTAINER SIZE. Containers and portable tanks for liquids shall conform to Table 8.315-1 except as provided in par. (a) or (b). Approved plastic containers shall have the approving laboratory insignia embossed on the container.

Table 8.315-1
 Maximum Allowable Size of Containers and Portable Tanks

Container Type	Flammable Liquids			Combustible Liquids	
	Class 1A	Class IB	Class IC	Class II	Class III
Glass	1 pt.	1 qt.	1 gal.	1 gal.	5 gal.
Metal (other than DOT drums) or Approved Plastic	1 gal.	5 gal.	5 gal.	5 gal.	5 gal.
Safety Cans	2 gal.	5 gal.	5 gal.	5 gal.	5 gal.
Metal Drum (DOT Spec.)	60 gal.	60 gal.	60 gal.	60 gal.	60 gal.
Approved Portable Tanks	660 gal.	660 gal.	660 gal.	660 gal.	660 gal.
Polyethylene (DOT Spec. 34 or as Authorized by DOT Exemption)	1 gal.	5 gal.	5 gal.	60 gal.	60 gal.

COMMERCIAL AND INDUSTRIAL PLANTS

Ind 8.355 (4) (e) [5-2.4.5] Transferring liquids by means of pressurizing the container with air is prohibited. Transferring liquids by pressure of inert gas is permitted only if controls, including pressure relief devices, are provided to limit the pressure so it cannot exceed the design pressure of the vessel, tank or container.

Ind. 8.37 [5-5] FIRE CONTROL. (1) [5-5.1] FIRE EXTINGUISHERS. Portable fire extinguishment and control equipment shall be provided in such quantities and types as are needed for the special hazards of operation and storage.

Ind. 8.375 [5-6] SOURCES OF IGNITION. (1) [5-6.1] PRECAUTIONS. Precautions shall be taken to prevent the ignition of flammable vapors. Sources of ignition include but are not limited to open flames; lightning; smoking; cutting and welding; hot surfaces; frictional heat; static, electrical and mechanical sparks; spontaneous ignition, including heat-producing chemical reactions; and radiant heat.

(2) [5-6.2] ELECTRICAL CONTACT. Class I, Class II or Class III liquids at a temperature above their flash points shall not be dispensed into metal containers unless the nozzle or fill pipe is in electrical contact with the container. This can be accomplished by maintaining metallic contact during filling, by a bond wire between them, or by other conductive path having an electrical resistance not greater than 10^6 ohms. Bonding is not required where a container is filled through a closed system, or the container is made of glass or other nonconducting material.

Ind 8.385 [5-8] REPAIRS TO EQUIPMENT. Hot works, such as welding or cutting operations, use of spark-producing power tools, and chipping operations shall be permitted only under supervision of an individual in responsible charge. The individual in responsible charge shall make an inspection of the area to be sure that it is safe for the work to be done and that safe procedures will be followed for the work specified.

Ind 8.39 [5-9] HOUSEKEEPING. (1) [5-9.1] CONTROL OF LEAKAGE. Maintenance and operating practices shall be in accordance with established procedures which will tend to control leakage and prevent the accidental escape of flammable or combustible liquids. Spills shall be cleaned up promptly.

MARINE SERVICE STATIONS

Ind 8.535 DISPENSING AREA AND EQUIPMENT. (1) DISPENSING AREA. The dispensing area shall be located from other structures so as to provide room for safe ingress and egress of craft to be fueled.

(2) DISPENSING UNITS. (a) Dispensing units shall in all cases be at least 20 feet from any activity involving fixed sources of ignition.

(b) Dispensing shall be by approved dispensing units with or without integral pumps and may be located on open piers, wharves or floating docks, or on shore or on piers of the solid-fill type.

(c) Dispensing nozzles shall be automatic closing without a hold open device.

(3) TANKS AND PUMPS. (a) Tanks and pumps not integral with the dispensing unit, shall be on shore or on a pier of the solid-fill type.

1. 'Exceptions.' a. The department may authorize the installation of tanks on a pier where shore location would require excessively long supply lines to dispensers, provided the installation complies with the spacing, diking, and piping requirements of this chapter and the quantity so stored does not exceed 1,100 gallons aggregate capacity.

b. Shore tanks supplying marine service stations may be located above-ground where rock ledges or high water table make underground tanks impractical. Such tanks shall be installed in accordance with the applicable requirements of this chapter.

(b) Where tanks are at an elevation which produces a gravity head on the dispensing unit, the tank outlet shall be equipped with a device, such as a solenoid valve, positioned adjacent to and downstream from the required valve, so installed and adjusted that liquid cannot flow by gravity from the tank in case of piping or hose failure when the dispenser is not in use.

(4) PIPING. Piping between shore tanks and dispensing units shall be in accordance with the applicable requirements of this chapter except that, where dispensing is from a floating structure, suitable lengths of oil resistant flexible hose may be employed between the shore piping and piping on the floating structure as made necessary by change in water level or shoreline.

(a) [7-3.1.1] Piping handling Class I liquids shall be grounded to control stray currents.

(b) [7-3.1.2] Piping shall be located so as to be protected from physical damage.

(c) [7-3.1.3] A readily accessible valve to shut off the supply from shore shall be provided in each pipeline at or near the approach to the pier and at the shore end of each pipeline adjacent to the point where flexible hose is attached.

(d) [7-3.1.4] After completion of the installation, including any paving, that section of the pressure piping system between the pump discharge and the connection for the dispensing facility shall be tested for at least 30 minutes at the maximum operating pressure of the system.

Ind 8.545 FIRE EXTINGUISHERS. All marine service shall be provided with at least one fire extinguisher having a minimum 20 BC rating.

A 34.39 WELDING. The following is a reprint of s. ILHR 53.53 Structural Welding of Steel of the Wisconsin Administrative Building and Heating, Ventilating and Air Conditioning Code:

ILHR 53.53 STRUCTURAL WELDING OF STEEL. The requirements of this section shall apply to all welds on or between materials within the scope of ss. ILHR 53.50, 53.51 and 53.52.

(1) BASE METALS. Steels to be welded under this code are listed in AWS D 1.1, sections 8.2 and 10.2 [s. ILHR 51.27 (6)].

(2) FILLER METALS. Filler metal requirements that are acceptable under this code are listed AWS D 1.1 section 4.1 [s. ILHR 51.27 (6)].

(3) WELDING PROCESSES. (a) Manual shielded metal arc, submerged arc, gas metal arc and flux cored arc welding processes conforming with the procedures established in AWS D 1.1, sections 2, 3 or 4 [s. ILHR 51.27 (6)] shall be considered as prequalified and are approved for use without performing procedure qualification tests.

(b) Electroslag and electrogas welding processes will not be considered as prequalified. They may be used provided a procedure is developed and provided it conforms to the applicable provisions of AWS D 1.1, sections 2, 3 or 4 [s. ILHR 51.27 (6)].

(4) WELDING PROCEDURES. (a) Procedure specification. All welding procedures shall be prepared as a written procedure specification. This written procedure specification shall be prepared by the manufacturer, fabricator or contractor and shall be made available or submitted to the department when requested.

(b) Procedure qualification. All joint welding procedures shall be previously qualified by tests as prescribed in AWS D 1.1 section 5.6 [s. ILHR 51.27 (6)], except for the prequalified procedures exempted in s. ILHR 53.53 (3) (a). The test shall be conducted under the supervision of an approved testing laboratory and the test results shall be submitted to the department for approval.

(5) DESIGN OF WELDED CONNECTIONS AND JOINTS. The details of all joints shall comply with the requirements of AWS D 1.1, section 2 and section 10, parts C and D [s. ILHR 51.27 (6)]. All joint forms, except those specified in AWS D 1.1, section 2 and section 10, parts C and D, shall not be used unless qualified to the satisfaction of the department.

(a) Stud welding. Stud welding shall be done by a procedure qualified in accordance with the requirements of AWS D 1.1, section 4, part F [s. ILHR 51.27 (6)].

(6) OPERATOR QUALIFICATIONS. All structural welding work shall be done by certified [as defined in s. ILHR 53.53 (7)] welders. The required qualification test shall be conducted under the supervision of an approved testing laboratory. The weld test report shall be submitted to the department for evaluation. Test specimens shall be submitted when requested by the department.

(a) The manual welders shall be tested and qualified in accordance with AWS D 1.1, section 5, part C [s. ILHR 51.27 (6)].

(b) The manual tackers shall be tested and qualified in accordance with AWS D 1.1, section 5, part E [s. ILHR 51.27 (6)].

(c) The welding machine operator shall be tested and qualified in accordance with AWS D 1.1, section 5, part D [s. ILHR 51.27 (6)].

(7) OPERATOR CERTIFICATION. The department will issue to the welder or welding machine operator who has successfully passed the prescribed qualification tests, a certificate bearing his name, social security number, identifying mark, the process, the procedure specification number and other pertinent information from his qualification test. This certificate will remain in effect for 3 years provided the operator is continuously engaged in welding operations without an interruption of more than 3 consecutive months. If the interruption exceeds 3 consecutive months, the certificate shall automatically become void.

(a) Each manual welder and tacker or welding machine operator shall be retested every 3 years in accordance with s. ILHR 53.53 (6).

(b) Each manual welder and tacker or welding machine operator certificate which has become void due to welding operation interruption exceeding 3 consecutive months or having exceeded the 3-year certificate time limit can be renewed only by retesting at an approved testing laboratory.

(8) WELD IDENTIFICATION. Each structurally significant member shall have its welding identified by a distinguishing mark stamped on the member by the certified welders involved.

(9) CRITERION OF FINAL ACCEPTANCE. All structural welding is subject to examination by approved inspectors and such inspection shall be the final criterion for conformance and acceptability for the intended use.

(10) STRUCTURAL WELDING DONE OUTSIDE THIS STATE. All welding shall conform with the requirements of s. ILHR 53.53 except the requirements of sub. (7). In lieu of operator certification, manufacturers and suppliers of structural steel shall, prior to commencing any welded construction, submit evidence of procedure qualification, if not prequalified, and welder certification that has been approved by an independent testing laboratory which is acceptable to the department. Manufacturers and suppliers are required to keep the welder certification current.

Note: The welder certification requirement may be submitted and kept current by having the approved testing laboratory submit a list of certified welders to the department. The submittal may be a part of the materials approval information submitted for s. ILHR 50.19 or may be submitted separately for the manufacturers not having a materials approval.

A 34.41 ACCIDENT REPORTING. The following form (SB-211) is referred to in s. ILHR 34.41 note. Copies of this form are available from the Division of Safety and Buildings, Bureau of Safety Inspection, P.O. Box 7969, Madison, Wisconsin 53707.

SAFETY AND BUILDINGS DIVISION

BUREAU OF SAFETY INSPECTION

P.O. BOX 7969

MADISON, WISCONSIN 53707

AMUSEMENT RIDE/DEVICE ACCIDENT REPORT

The owner/operator of the amusement ride or device shall notify the Department of Industry, Labor and Human Relations of every accident involving personal injury which requires medical or first aid attention. (Ind. 47.60-Wis. Admin. Code)

THIS FORM MUST BE SUBMITTED WITHIN 10 DAYS AFTER ACCIDENT OR INJURY.

Date of Report	Date of Accident	Name of Carnival or Show
Ride or Device No.	Name of Ride or Device	
Ride or Device Manufacturer		Location of Ride or Device at the Time of Accident
Name of Operator Responsible for Ride or Device		Address of Operator Responsible for Ride or Device
Name of Liability Insurance Company		Number of Persons Injured
Extent of Injuries: <input type="checkbox"/> Bruises <input type="checkbox"/> Severe <input type="checkbox"/> Other (Specify) <input type="checkbox"/> Broken Bones <input type="checkbox"/> Fatal		Are Injured Person(s) Covered by Wisconsin Worker's Compensation Act? <input type="checkbox"/> Yes <input type="checkbox"/> No
Describe to the best of your knowledge the Cause of the Accident:		
In your opinion what would prevent recurrence of similar accidents:		

Signature of Person Reporting	Position
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EFFECTIVE DATE

Pursuant to s. 227.026 (1) (intro.), Stats., these rules shall take effect on the first day of the month following publication in the Wisconsin Administrative Register.

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