

RULE ADOPTIONS

COMMUNITY AFFAIRS

(a)

DIVISION OF CODES AND STANDARDS

Carnival-Amusement Rides

ASTM F2291 Design of Amusement Rides

Adopted Amendments: N.J.A.C. 5:14A-7.2 and 9.21

Proposed: September 8, 2015, at 47 N.J.R. 2201(b).

Adopted: January 26, 2016, by Charles A. Richman, Commissioner,
Department of Community Affairs.

Filed: March 2, 2016, as R.2016 d.027, **without change**.

Authority: N.J.S.A. 5:3-36.

Effective Date: April 4, 2016.

Expiration Date: March 25, 2022.

Summary of Public Comment and Agency Response:

No comments were received.

Federal Standards Statement

A Federal standards analysis is not required because the amendments are not being adopted under the authority of, or in order to implement, comply with, or participate in, any program established under Federal law or under a State statute that incorporates or refers to Federal law, standards, or requirements.

Full text of the adoption follows:

5:14A-7.2 Adoption as amended of ASTM practice F2291-14

(a) The Standard Practice for Design of Amusement Rides and Devices, designated by the ASTM International (ASTM) as F2291-14, is adopted by reference, as amended, and made part of this subchapter and shall be enforced as part of this subchapter.

(b) (No change.)

(c) The following sections of the standard are modified as follows:

1. Section 1, Scope, shall be amended as follows:

i.-ii. (No change.)

2. Section 2, Referenced Documents, shall be amended as follows:

i. Section 2.1:

(1) "F 770" shall be deleted and "F 770-14" shall be inserted in its place.

(2) "F 1159" shall be deleted and "F 1159-11" shall be inserted in its place.

(3) "F 1193" shall be deleted and "F 1193-06" shall be inserted in its place.

(4) "F 2137" shall be deleted and "F 2137-11" shall be inserted in its place.

ii. Section 2.3:

(1) "ACI-301" shall be deleted and "ACI 301-10" shall be inserted in its place.

(2) "ACI-318" shall be deleted and "ACI 318-11" shall be inserted in its place.

iii. Section 2.4: "NDS" shall be deleted and "NDS (2012)" shall be inserted in its place.

iv. Section 2.5:

(1) "AISC 316" shall be deleted and "AISC 316 (1989)" shall be inserted in its place.

(2) "AISC M015" shall be deleted and "AISC M015 (1986)" shall be inserted in its place.

v. Section 2.6:

(1) "ANSI B93.114M" shall be deleted and "ANSI B93.114M (1987)" shall be inserted in its place.

(2) "ANSI B11.TR3" shall be deleted and "ANSI B11.TR3 (2000)" shall be inserted in its place.

(3) "ANSI B77.1" shall be deleted and "ANSI B77.1 (2006)" shall be inserted in its place.

(4) "ANSI Y32.10" shall be deleted and "ANSI Y32.10 (1967)" shall be inserted in its place.

vi. Section 2.7:

(1) "ASCE 7" shall be deleted and "ASCE 7 (2005)" shall be inserted in its place.

(2) "ASCE 16" shall be deleted and "ASCE 16 (1995)" shall be inserted in its place.

vii. Section 2.8:

(1) "ASM Atlas of Fatigue Curves" shall be deleted and "ASM Atlas of Fatigue Curves (1986)" shall be inserted in its place.

(2) "ASM Handbook Volume 19: Fatigue and Fracture" shall be deleted and "ASM Handbook Volume 19: Fatigue and Fracture (1996)" shall be inserted in its place.

viii. Section 2.9:

(1) "ASME B15.1" shall be deleted and "ASME B15.1 (2000)" shall be inserted in its place.

(2) "ASME A17.1" shall be deleted and "ASME A17.1 (2007)" shall be inserted in its place.

ix. Section 2.10:

(1) "ANSI/AWS D1.1/D1.1M" shall be deleted and "ANSI/AWS D1.1/D1.1M (2008)" shall be inserted in its place.

(2) "ANSI/AWS D14.4" shall be deleted and "ANSI/AWS D14.4 (2005)" shall be inserted in its place.

x. Section 2.11:

(1) "BS 5400-10" shall be deleted and "BS 5400-10 (1980)" shall be inserted in its place.

(2) "BS 7608" shall be deleted and "BS 7608 (1993)" shall be inserted in its place.

xi. Section 2.15: "DIN 15018-1" shall be deleted and "DIN 15018-1 (1984)" shall be inserted in its place.

xii. Section 2.16:

(1) "EN 280" shall be deleted and "EN 280 (2001)" shall be inserted in its place.

(2) "EN 954-1" shall be deleted and "EN 954-1 (1996)" shall be inserted in its place.

xiii. Section 2.17: "FM6930" shall be deleted and "FM6930 (2009)" shall be inserted in its place.

xiv. Section 2.18: "USDA-72" shall be deleted and "USDA-72 (1999)" shall be inserted in its place.

xv. Section 2.19:

(1) "IEC-60204-1" shall be deleted and "IEC-60204-1 (2009)" shall be inserted in its place.

(2) "IEC-61496-1" shall be deleted and "IEC-61496-1 (2008)" shall be inserted in its place.

(3) "IEC-61508-1" shall be deleted and "IEC-61508-1 (2010)" shall be inserted in its place.

(4) "IEC-61511" shall be deleted and "IEC-61511-1 (2004)" shall be inserted in its place.

(5) "IEC-62061" shall be deleted and "IEC-62061 (2005)" shall be inserted in its place.

xvi. Section 2.20:

(1) "ISO 4113" shall be deleted and "ISO 4113 (1998)" shall be inserted in its place.

(2) "ISO 4413" shall be deleted and "ISO 4413 (1998)" shall be inserted in its place.

(3) "ISO 4414" shall be deleted and "ISO 4414 (1998)" shall be inserted in its place.

(4) "ISO 4406" shall be deleted and "ISO 4406 (1999)" shall be inserted in its place.

(5) "ISO 6149-1" shall be deleted and "ISO 6149-1 (2006)" shall be inserted in its place.

xvii. Section 2.21:

(1) "MIL 17" shall be deleted and "MIL 17 (2002)" shall be inserted in its place.

(2) "MIL 882C" shall be deleted and "MIL 882C (1993)" shall be inserted in its place.

xviii. Section 2.22: "NEMA 250" shall be deleted and "NEMA 250 (2008)" shall be inserted in its place.

xix. Section 2.23:

(1) "NFPA-79" shall be deleted and "NFPA-79 (2007)" shall be inserted in its place.

(2) "NFPA-70" shall be deleted and "NFPA-70 (2011)" shall be inserted in its place.

(3) "NFPA-101" shall be deleted and "NFPA-101 (2009)" shall be inserted in its place.

xx. Section 2.24:

(1) "NFPA/JIC T2.25.1M" shall be deleted and "NFPA/JIC T2.25.1M (1986)" shall be inserted in its place.

(2) "NFPA/ T2.24.1" shall be deleted and "NFPA/ T2.24.1 R1 (2007)" shall be inserted in its place.

xxi. Section 2.25:

(1) "SAE J-211" shall be deleted and "SAE J211/1 (2007)" shall be inserted in its place.

(2) "SAE J518" shall be deleted and "SAE J518 (2004)" shall be inserted in its place.

(3) "SAE J833" shall be deleted and "SAE J833 (2003)" shall be inserted in its place.

(4) "SAE J1926" shall be deleted and "SAE J1926/3 (2010)" shall be inserted in its place.

(5) "SAE HS 4000" shall be deleted and "SAE HS-4000 (2009)" shall be inserted in its place.

xxii. Section 2.27:

(1) "UL 508" shall be deleted and "UL 508 (2008)" shall be inserted in its place.

(2) "UL 508A" shall be deleted and "UL 508A (2009)" shall be inserted in its place.

xxiii. Add section 2.28: "The following documents are available from MIT Press, 5 Cambridge Center, Cambridge, MA 02142-1493:

(1) Dreyfuss Human Scale 4/5/6;

(2) Dreyfuss Human Scale 7/8/9."

3. Section 3, Terminology, shall be amended as follows:

i. Section 3.1.15, the definition of "manufacturer" shall be deleted.

ii. Section 3.1.20, the definition of "previously compliant" shall be deleted.

iii. Section 3.1.25 shall be deleted.

4. Section 6, Patron Restraint, Clearance Envelope, and Containment Design Criteria, shall be amended as follows:

i. Section 6.3.1, the last sentence shall be deleted.

ii. Section 6.3.3, the word "manufacturer" shall be deleted and the word "design" shall be substituted in lieu thereof.

iii. Section 6.3.4, the word "manufacturer" shall be deleted and the word "design" shall be substituted in lieu thereof.

iv. (No change.)

v. Section 6.4.2 shall be deleted in its entirety.

vi. (No change in text.)

vii. Section 6.6.4.1: In the first sentence, the word "determined" shall be deleted and the word "specified" shall be inserted in its place.

viii. Section 6.6.4.2: In the first sentence, the word "determined" shall be deleted and the word "specified" shall be inserted in its place.

ix. Section 6.7: In the first sentence, the words "manufacturer shall determine and may make" shall be deleted and the words "design shall include" shall be inserted in its place.

5. Section 8, Loads and Strengths, shall be amended as follows:

i. (No change.)

ii. (No change in text.)

iii. Section 8.4.1: In the first sentence, add the words "the design specifies instructions for" after the words "only when"; delete the word "are" after the word "component" and substitute in lieu thereof the words "to be" and delete the words "per the designer/engineer's instructions."

iv. Section 8.4.2: In the first sentence, the words "designer/engineer" shall be deleted and the word "design" shall be inserted in its place.

v. Section 8.6.4: The words "for fatigue" shall be deleted. The words "designer/engineer" shall be deleted and the words "ride analysis" shall be inserted.

vi. Section 8.6.6: The words "designer/engineer" shall be deleted and the words "ride analysis" shall be inserted in lieu thereof.

vii. (No change in text.)

viii. Section 8.7.1: In the first sentence, the words "designer/engineer-defined applicable" shall be deleted; the word "that" after the word "loads" shall be deleted and the words "defined in this practice, to which" shall be added in lieu thereof; and the word "to" after the word "subjected" shall be deleted.

ix. In Section 8.10, Operational (Dynamic) Loads, add new subsection: "8.10.3 Elevated walking surfaces in primary circulation areas, including, but not limited to, waiting areas, loading and unloading areas, platforms, landings, stairs, and ramps, shall be designed to accommodate a live load of at least 100 pounds per square foot. All other elevated walking surfaces shall be designed to accommodate a live load of at least 60 lb/ft²."

x. Section 8.12.3: The words "designer/engineer" shall be deleted and the word "design" shall be inserted in lieu thereof; the words "for which" shall be inserted after the word "loads"; and the words "for, in the operating and maintenance instructions. See section on Manufacturer's Responsibility of Practice F1193." shall be deleted.

xi. Section 8.13.2: In the first sentence, the words "designer/engineer or manufacturer" shall be deleted and replaced with the word "design." Also, the words "in the operating and maintenance instructions" shall be deleted. See section on Manufacturer's Responsibility of Practice F1193.

xii. Section 8.14.1: In the first sentence, the words "designer/engineer or manufacturer" shall be deleted and replaced with the word "design." Also, the words "in the operating and maintenance instructions" shall be deleted. See section on Manufacturer's Responsibility of Practice F1193.

xiii. (No change in text.)

xiv. Section 8.15.7: In the third sentence, the words "designer/engineer" shall be deleted and the word "design" inserted in its place.

xv. (No change in text.)

xvi. Section 8.25.1.9 shall be modified to delete the words "The designer/engineer should use good judgment and consider using higher" and insert the word "Higher" in lieu thereof. Also, in the second sentence, the words "shall be used" shall be inserted following the word "values."

xvii. Section 8.30.1: In the first sentence, the words "for fixed or permanent amusement rides or devices" shall be deleted.

xviii. Section 8.30.2 shall be deleted in its entirety including Note 6.

xix. Section 8.31.2: In the first sentence, the words "Within the Manufacturer-provided" shall be deleted and the words "The design shall include" shall be substituted in lieu thereof; and the words "the manufacturer shall" shall be deleted and the word "which" shall be substituted in lieu thereof.

xx. (No change in text.)

xxi. Section 8.33.4: In the first sentence, the words "designer/engineer shall design the" shall be deleted and the words "design shall specify" shall be inserted in its place. In the second sentence, the words "designer/engineer" shall be deleted and the word "design" shall be inserted in its place.

xxii. Section 8.35.2: In the first sentence, the words "designer/engineer shall properly select and design" shall be deleted and the words "design shall include properly selected" shall be inserted in its place.

6. Section 9, Hydraulic Systems and Components, shall be amended as follows:

i. In section 9.2.1.1, in the first sentence, delete the words "designer/engineer" and substitute in lieu thereof the word "design" and delete the word "provide" and substitute the word "include" in lieu thereof.

ii. In section 9.2.1.2, delete the words "designer/engineer" and substitute the word "design" and delete the words "provide the purchaser with" and substitute the word "include" in lieu thereof.

iii. In section 9.2.2.1, delete the word "should" and substitute the word "shall" in lieu thereof.

iv. In section 9.3.1, delete the words "Designer/Engineer" and substitute the word "design" in lieu thereof.

v. In section 9.3.2, the words "designer/engineer" in the third sentence shall be deleted and the word "design" shall be substituted in lieu thereof.

vi. In section 9.3.4, delete the words "designer/engineer" in the first sentence and substitute the word "design" in lieu thereof.

vii. In section 9.3.5.1, the words "designer/engineer should" shall be deleted and the words "design shall" shall be substituted in lieu thereof.

viii. In section 9.3.5.2, the words "designer/engineer should" shall be deleted and the words "design shall" shall be substituted in lieu thereof.

ix. Add section "9.8.7.4 The design of hydraulic systems shall include means for isolating and locking-out stored hydraulic energy from ride components subject to maintenance and inspection."

x. In section 9.11.1, the words "Section 8, Division 1 of the ASTM Boiler and Pressure Vessel Code for unfired pressure vessels, or equivalent standard for accumulators such as are available from EN, TUV or ISO" shall be deleted and "N.J.A.C. 12:90." shall be substituted in lieu thereof.

7. Section 10, Pneumatic Systems and Components, shall be amended as follows:

i. Section 10.2: In the second sentence, the words "or designer/engineer" shall be deleted and the words "and clearly stated in the design" shall be substituted in lieu thereof.

ii. (No change in text.)

iii. Add section "10.5 The design of pneumatic pressure vessels shall conform to requirements of N.J.A.C. 12:90."

8. Section 11, Safety Related Electrical/Electronic/Programmable Electronic Control Systems, shall be amended as follows:

i. In Section 11.2.5, the words "designer/engineer" shall be deleted and the word "design" shall be substituted in lieu thereof, and the word "identify" shall be deleted and the word "specify" shall be substituted in lieu thereof.

ii. In section 11.3.9.4, the words "at least one operator while the device is running" shall be deleted and the words "each operator control station and additional locations as determined by the ride analysis" shall be substituted in lieu thereof.

9. Section 12, Electrical Requirements, shall be amended as follows:

i. Section 12.1.1 shall be deleted and replaced with the following: "Design and manufacture of electrical systems and components shall comply with NFPA 70 and NFPA 79, except as modified by this practice. Equivalent standards may be used, including, but not limited to, standards from CSA, EN, DIN, ISO, and IEC."

ii. Section 12.1.3 and Table 2 are deleted in their entirety.

iii. Section 12.1.4 shall be deleted in its entirety.

iv. Section 12.1.5.1: Delete the words "Year Version of NEC Used for Design" and "Year Version of Practice F1159 Used in Design."

v. Section 12.4.1.4: Add the following words to the end of the first sentence, "where not accessible to patrons or spectators."

vi. In Section 12.5.3.1, the term "2000" shall be deleted.

vii. In Section 12.5.3.2, the term "2000" shall be deleted.

10. Section 13, Mechanical Systems and Components, shall be amended as follows:

i.-iii. (No change.)

Recodify existing v. and vi. as iv. and v. (No change in text.)

vi. In Section 13.3.13, the words "should be considered" shall be deleted and the words "shall be instituted," shall be inserted in its place.

vii. (No change in text.)

viii. Add new section "13.7.2.2 When an amusement ride or device has multiple vehicles, or trains, that travel simultaneously and independently of each other through a common course and collision of vehicles, or trains, is likely to create an unsafe condition, a safety brake system shall be provided to prevent collision."

ix. Add new section "13.7.2.3 Safety brake systems shall be designed such that no single component failure can diminish the effectiveness of the brake system to perform its intended function."

x. Add new section "13.7.2.4 Safety brake systems shall be equipped with an automatic system that controls behavior required to perform intended function."

xi. Add new section "13.7.2.5 Safety brake systems utilizing pneumatics to activate brakes shall have a dedicated supply holding tank

at each set of brakes with a 'check valve' or 'one-way valve' on the supply inlet to prevent complete loss of air pressure, in the event of a break in the supply line or compressor fault."

xii. Add a new section "13.7.2.6 Safety brake systems using pneumatics to activate brakes shall have a pressure-sensing device installed at the dedicated supply holding tank, which detects when pressure drops below minimum required for performing intended function of brakes and initiates an emergency stop condition."

xiii. In Section 13.7.3.1, the words "designer/engineer" shall be deleted and the word "design" inserted in their place.

11. Section 15, Welding, shall be amended as follows:

i. In Section 15.4, the words "manufacturer's record retention policy" shall be deleted and the words "record retention requirements of N.J.A.C. 5:14A" shall be inserted in their place.

12. Section 16, Fasteners, shall be amended as follows:

i. (No change.)

ii. Section 16.1.5: In the first sentence, the word "is" shall be deleted and the words "shall be" shall be inserted in its place. Also, in the second sentence, the words "deemed appropriate by the designer/engineer" shall be deleted and the words "specifically demonstrated by the design to be acceptable" shall be substituted in lieu thereof.

iii. In Section 16.1.9, the word "should" shall be deleted and the word "shall" shall be inserted in its place and the words " , unless specifically demonstrated by the design to be acceptable." shall be added to the end of the sentence.

13. Section 18, Information to be Provided to the Owner/Operator, shall be deleted in its entirety.

14. Annex A1, Loads and Strengths, shall be amended as follows:

i. In Section A1.3.1, the word "that" shall be deleted.

ii. Section A1.4.1: In the second sentence, the word "should" shall be deleted and the word "shall" shall be inserted in its place.

iii. In Section A1.9.1.3, the words "and Wind (operational)" shall be added.

iv. Section A1.9.2.7: The words "designer/engineer should" shall be deleted and the words "design shall" shall be substituted in lieu thereof.

(d) The ASTM standard F2291-14 may be obtained from:

ASTM International
100 Barr Harbor Drive
West Conshohocken, PA 19428-2959.

5:14A-9.21 Electrical equipment and wiring

Recodify existing (b) and (c) as (a) and (b) (No change in text.)

(c) Set-up of mobile amusement rides shall comply with Article 525 of NFPA 70, as amended by N.J.A.C. 5:14A-7.2(c)9.

(a)

DIVISION OF CODES AND STANDARDS

Uniform Construction Code

Responsibilities and Elevator Test and Inspection Fees

Adopted Amendments: N.J.A.C. 5:23-3.4 and 12.6

Adopted Repeal: N.J.A.C. 5:23-7.15

Proposed: September 21, 2015, at 47 N.J.R. 2323(a).

Adopted: January 26, 2016, by Charles A. Richman, Commissioner, Department of Community Affairs.

Filed: March 7, 2016, as R.2016 d.031, **without change**.

Authority: N.J.S.A. 52:27D-124.

Effective Date: April 4, 2016.

Expiration Date: March 25, 2022.

Summary of Public Comments and Agency Responses:

Comments were received from Dan O'Gorman; Thomas Valeo, Electrical Subcode Official, Union City; and John J. Drucker, Assistant Construction Official/Fire Protection Subcode Official, Borough of Red Bank.