



ASTM INTERNATIONAL  
Helping our world work better

# Editorial Module: Process of Developing and Revising a Standard

[www.astm.org](http://www.astm.org)

# Objectives

---

- New Standard Activity
- Work Items
- Development Tools
- Writing Tools
- ASTM Standard
- Revisions
- Review
- Publication

# Standard Activity

---



- Developing a new standard
- Review an existing standard
- Revising an existing standard

# Work Items

---

- Authorization is required, either from Subcommittee Chair or Subcommittee Members at a meeting
  
- Register Work Item at [www.astm.org](http://www.astm.org)
  - ✓ New Standard - Title, Scope, Keywords
  
- Provides tracking number & required for balloting, example, WK89005
  
- An email with a link to the WORD version of the standard will be sent to the technical contact when revising an existing standard.

# Work Item Summary



ASTM WK89031

## Revision of [E119-22](#) Standard Test Methods for Fire Tests of Building Construction and Materials

**Active Standard:** [E119-22](#)

Developed by Subcommittee: [E05.11](#) | Committee [E05](#) | Contact [Staff Manager](#)

[MORE E05.11 STANDARDS](#)

[RELATED PRODUCTS](#)

[COPYRIGHT/PERMISSIONS](#)

## WK89031

### Rationale

The purpose of the balloted item is to supplement Table X1.1 Standard Time-Temperature Curve for Control of Fire-Resistance Tests in Appendix X.1 with a set of analytic equations that can be used to calculate the standard furnace temperature as a function of time. These equations are easier to use in structural fire modeling than the tabulated time-temperature values in Table X1.1.

### Work Item Status

**Date Initiated:**

12-21-2023

**Technical Contact:**

Marc Janssens

**Item:**

001

**Ballot:**

E05.11 (24-01)

**Status:**

Item Removed from Ballot

# Standard Development Tools



- Writing Resources
  - ✓ Draft Templates
  - ✓ Developmental Editing (Up-front Editor)
- Collaboration Area
- Virtual Meetings

# Collaboration Area/Virtual Meetings



ASTM International Collaboration Area Manage

Current Collaboration Area: 71844 - WK71844 - Fire Resistance of Geo...

## 71844 - WK71844 - Fire Resistance of Geosynthetics

Collaboration Area | Drafts | Polls | Discussions | Files

Overview | Members | History | Edit Collaboration Area | Schedule Online Meeting

### WK71844 - Fire Resistance of Geosynthetics

Group Creation Date: 02/05/2021  
WorkItem Creation Date: 02/07/2020  
Ballot Target Date: 01/2021  
Work Item Status: Proposed  
Status: Draft Withdrawn

### Work Item Description

Geosynthetics may exhibit different response to fire. This test method is intended to provide a mean to classify geosynthetics exposed to fire. Additional questions to be answered: For instance, are routine tests or qualification tests required? Are special configurations to be more critical on fire hazards? Regulations in building materials and their resistance to fire is define by National Fire Codes. Should NFPA or a similar organism be involved in the development of the fire resistance of geosynthetics?

[Submit Item For Ballot](#) [Edit Work Item](#)

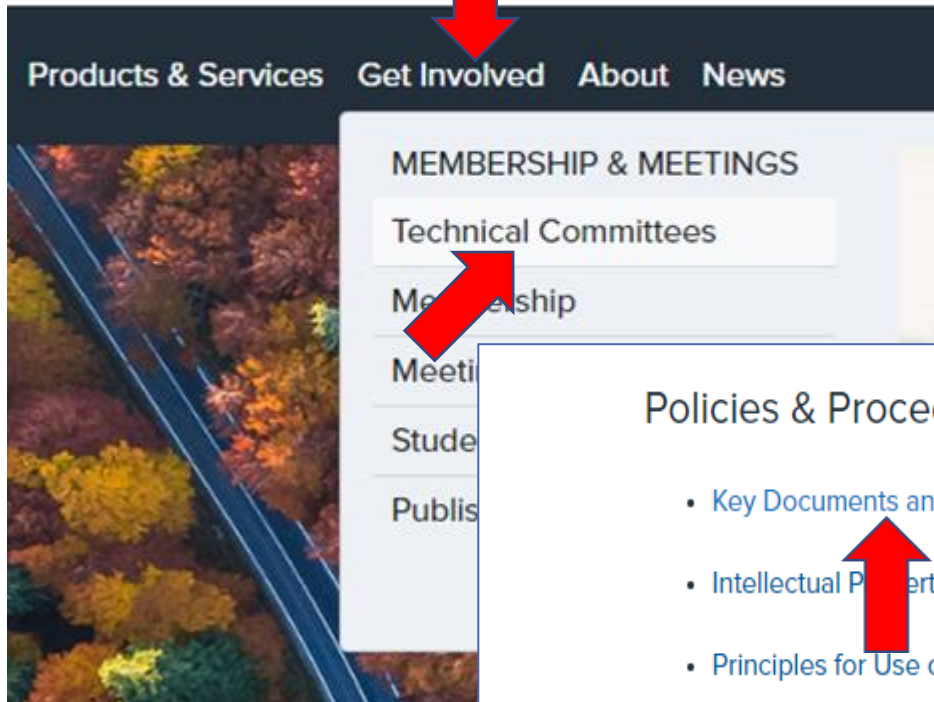


---

# WRITING RESOURCES



# Form and Style Manual



## Key Documents and Forms

- Form and Style Manual for ASTM Standards or “Blue Book”
- Regulations Governing ASTM Technical Committees or “Green Book”
- Draft Standard Templates
- ASTM Technical Committee Officer Handbook or “Red Book”
- Strategic Planning Manual (PDF)
- Proxy Form—For Voting (PDF)

## Policies & Procedures

- Key Documents and Forms
- Intellectual Property Policy
- Principles for Use of ASTM Intellectual Properties by Other Standards
- Patents
- Trademarks


Maybe add a video clip of navigation at a later date?

# The Form and Style for ASTM Standards



## Why Form and Style?

- The manual is the basic textbook for anyone writing an ASTM standard.
- The purpose of this manual is to promote uniformity of form and style in ASTM standards.
  - ✓ Such uniformity is desirable because it helps the user of the standard to find what is needed more easily and to understand what is read more quickly.



ASTM INTERNATIONAL  
Helping our world work better

---

### Contents

Preface	ii
Introduction	iii
Definitions	iv
Part A. Form of ASTM Test Methods	A-1
Part B. Form of ASTM Specifications	B-1
Part C. Form of Other Types of ASTM Standards	C-1
Part D. Use of the Modified Decimal Numbering System	D-1
Part E. Terminology in ASTM Standards	E-1
Part F. Caveats and Other Legal Aspects in Standards—Special Instructions	F-1
Part G. Standards Style Manual	G-1
Part H. Use of SI Units in ASTM Standards	H-1
Annex A. SI Quick Reference Guide	Annex-1
Summary of Changes	Changes-1
Index	Index-1

# Parts A through C



- A study of Parts [A](#), [B](#), [C](#), or [E](#) will show the proper form for the principal types of standards (Test Methods, Specifications, Guide/Practice, and Terminology) along with a detailed explanation of what should be included, and guidance on how best to build a standard.
  - ✓ Within Parts [A](#), [B](#), [C](#), and [E](#), the first section lists the preferred sequence of headings and indicates whether these sections are mandatory. The headings identified as “mandatory” are required.

# Parts D through F

---



- For easy reference purposes, each paragraph in an ASTM standard shall be numbered. The modified decimal numbering system is explained in [Part D](#).
- [Part E](#) on Terminology gives instructions for preparing a technical standard's definitions as well as how to format a committee's main terminology standard.
- Special instructions concerning patents, use of trademarks, open-end agreements, fire standards, and other legal issues are given in [Part F](#).

- [Part G](#) is a detailed Style Manual and is what your committee editor refers to most while editing the standard.
- Included in the section are:
  - ✓ Standard abbreviations and unit symbols for use in standards.
  - ✓ Information on grammatical corrections:
    - Capitalization
    - Hyphens
    - Italics
    - Spelling

➤ Also included in the section are:

✓ Instructions on Referencing:

- Standards
- Papers and Other Documents
- Trademarks

✓ Directions for Formatting:

- Figures
- Tables
- Footnotes
- Mathematical Material
- Numbering

# Part H and Annex A

---

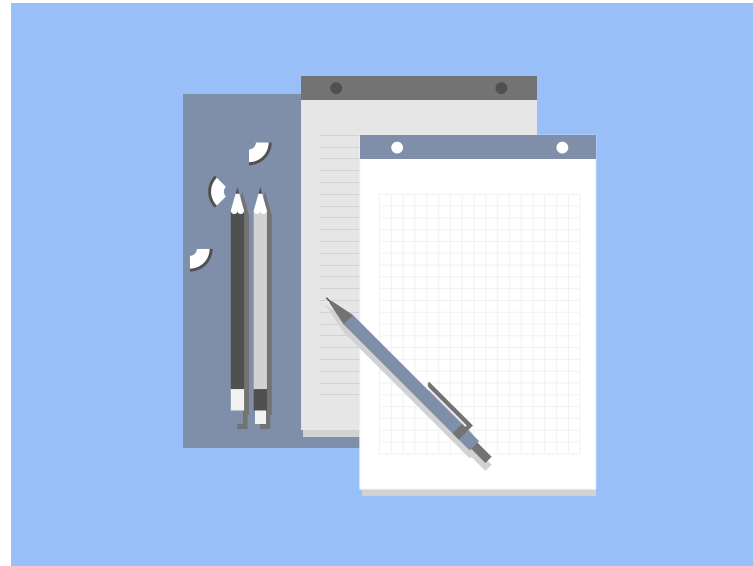
- ASTM policy is that SI units be included in all standards.
- [Part H](#) is included to aid the standards writer in incorporating these units correctly.
  - ✓ It is the technical committee's decision whether SI or other units are the preferred unit of measurement used in the committee's document. When SI and non-SI units of measurement are contained in a document, the order in which they appear is determined by that committee.

# Submit Your Draft in Word



## Ballot

TCO takes your WORD file and converts it to PDF for the ASTM website online balloting area.



## Development

Developmental editor works directly with you in WORD to develop your draft.



## Edit/Conversion

The committee editor converts the WORD file into XML (Extensible Markup Language) for composition and electronic publishing purposes.



# ASTM Templates



ASTM INTERNATIONAL  
Helping our world work better

Products & Services Get Involved About News

## Policies & Procedures

- [Key Documents and Forms](#)

## Key Documents and Forms

- [Form and Style Manual for ASTM Standards or "Blue Book"](#)
- [Regulations Governing ASTM Technical Committees or "Green Book"](#)
- [Draft Standard Templates](#)
- [ASTM Technical Committee Officer Handbook or "Red Book"](#)
- [Strategic Planning Manual \(PDF\)](#)
- [Proxy Form—For Voting \(PDF\)](#)

## Draft Standard Templates

**Important:** Please read Download Information and Template Features before using Templates.

- [Test Methods](#)
- [Specifications](#)
- [Guides/Practices](#)
- [Classification](#)
- [Terminology](#)

## Support Documents Template

- [Research Report](#)

## Help

- [Template Features](#)
- [The Form and Style for ASTM Standards or "Blue Book"](#)

# ASTM Templates

## Why use our templates?

- Helps the balloting process go more smoothly
  - ✓ Reduces negatives submitted for style issues
  - ✓ Line numbering included to help with committee discussions
- Prompts/reminders of sections for each type of standard



# ASTM Template Features

---



- Suggested and mandatory headings are provided; mandatory headings are in **RED**
- Dialog box prompts to insert Title and Footnote 1
- Ability to insert tables, figures, and equations
- Auto Numbering
  - ✓ Will renumber sections and subsections but will not update section references

# Screen Shot of Template



ethod for

der th  
r of o  
ates th  
or reap

ASTM Standard Properties

Work Item Number    Date e.g.:MM/DD/Y

WK1234    1/13/22

Standard Test Method for

Cellular Insulation Block

Main Committee Designation and Title  
e.g.:A01 on Title of Main

C16 Thermal Insulation

Subcommittee Designation and Title  
e.g.:A0.01 on Title of

C16.26 on Mechanical Properties

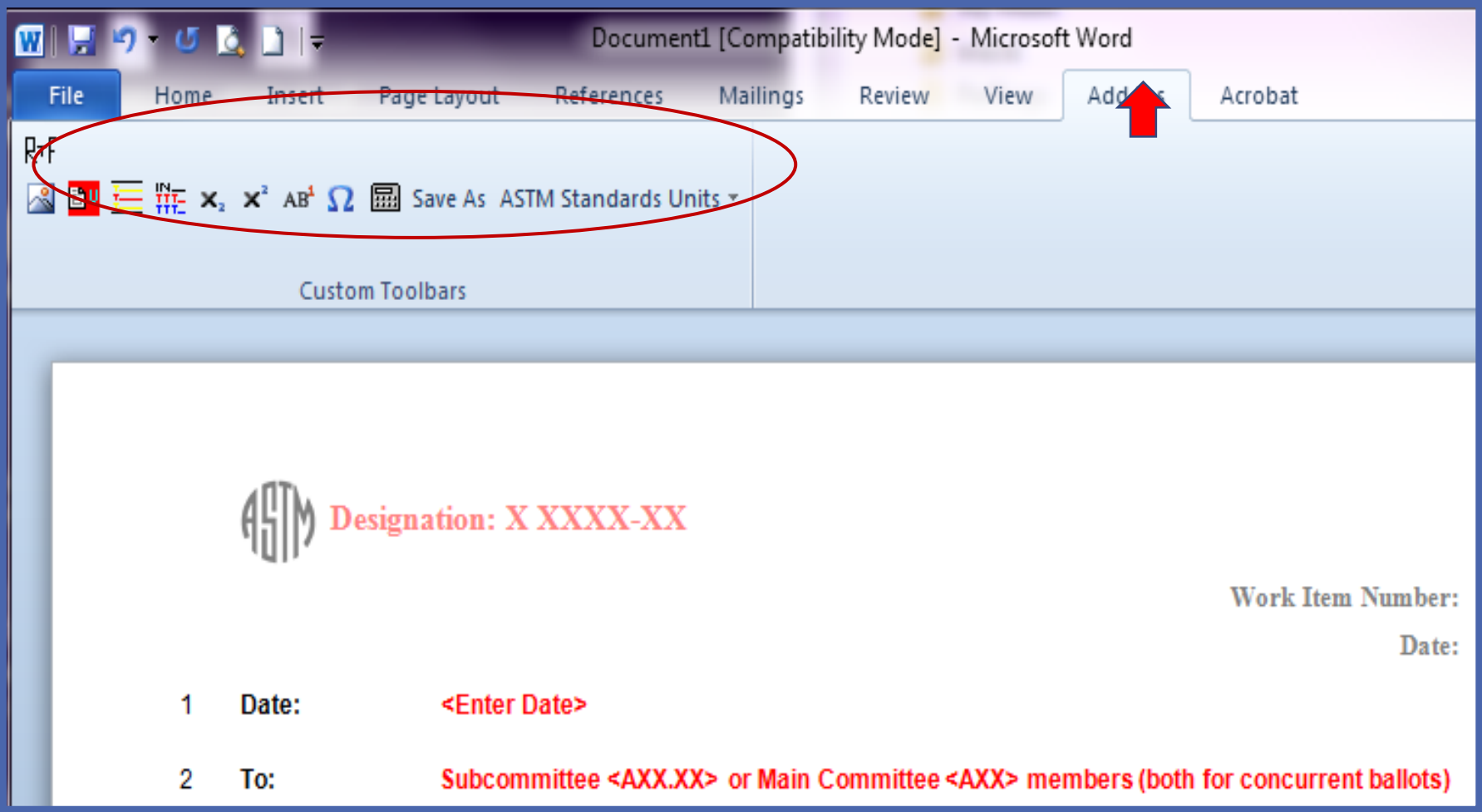
Okay    Cancel

© COPYRIGHT ASTM, 100 BARR HARBOR DRIVE, WEST CONSHOHOCKEN, PA 19428.  
ALL RIGHTS RESERVED.

the s  
pdow  
ot pu  
pility  
e the

standards  
iated  
ty and

# ASTM Template Toolbar



# ASTM Template Toolbar

---



➤ This button will insert figures into the draft.

- ✓ It will then prompt you to locate the appropriate image file on your computer and the figure will be automatically inserted at the end of the draft.



➤ This is the Auto Update button. This button initiates an “ASTM Standard Properties” pop-up window that prompts you for the Draft Title, Main Committee Jurisdiction, and Subcommittee Jurisdiction.



➤ This button creates a table in ASTM's style and inserts it at the end of the draft.

- ✓ If table data has already been completed in another file, the table may be manually inserted or pasted at the end of the draft without using this button.

# ASTM Template Toolbar



➤ This button will create an in-text table, in ASTM's style, based on your specifications, and insert it directly after the text that introduces it. This table will NOT have a title or a border.



➤ These are the Subscript and Superscript buttons, and they are usually used in equations. You would not use these for footnotes.



➤ This is the footnote button. Just click this and the superscript footnote reference will be placed in the text, and you will be directed to the bottom of the page to fill in the appropriate information for the footnote.

# ASTM Template Toolbar

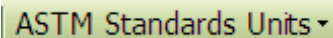
---



➤ This is the Insert Symbol button, which will enable you to add Greek letters and mathematical symbols into equations and text.



➤ This is the Insert Equation button, which will prompt you to insert an equation and number it correctly for you.



➤ This is the ASTM Standard Units button, which will enable you to place the correct Form and Style Units statement into your standard. Place your cursor in the Scope and then click on the button and select the statement you require from the drop-down menu. The unit statement will overwrite the explanatory statement.



# Developmental Editing (Up-front Editor)



- If you have questions while drafting a standard, contact the developmental editor.
- Developmental editor can be reached by phone or e-mail. Kathleen Peters, [kpeters@astm.org](mailto:kpeters@astm.org) or 610-832-9650
- Developmental editor can help you with:
  - ✓ Answering questions about the Form and Style for ASTM Standards and how to apply our style to standards
  - ✓ Questions regarding our templates
  - ✓ Upfront editing of new, revised, reinstated standards
  - ✓ Assisting with artwork issues

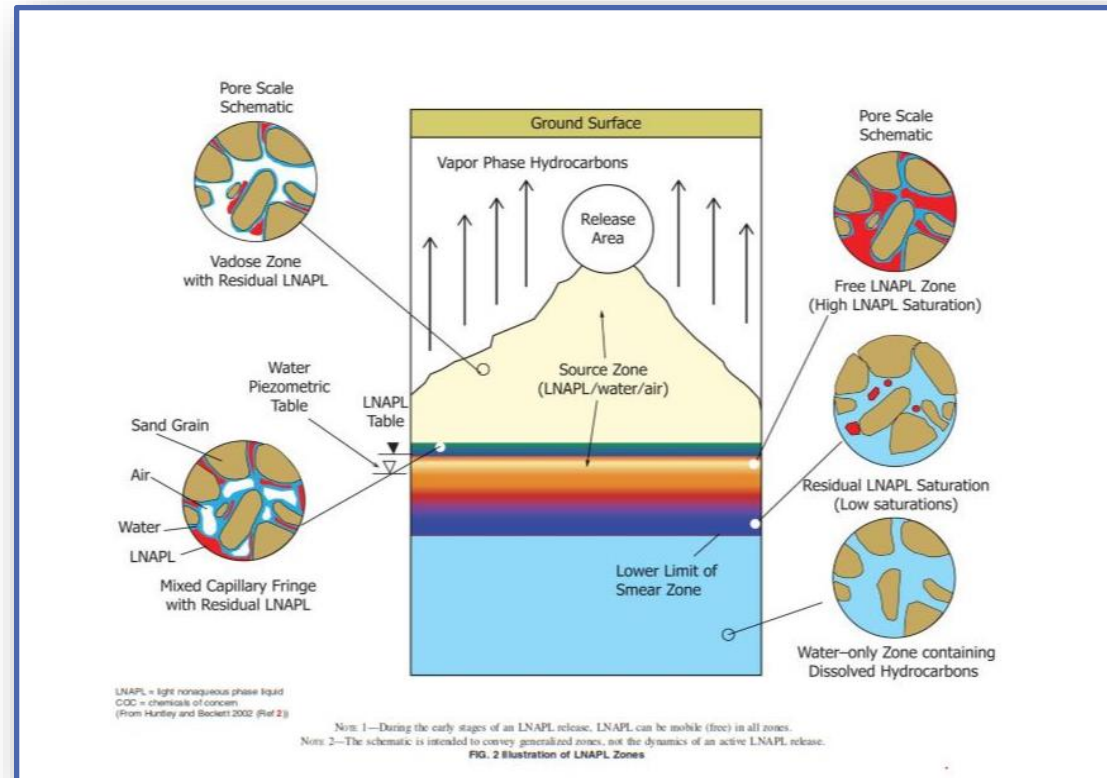
- Submit clean, readable figures
  - ✓ If revising an existing figure for ballot, submit changes to our Developmental Editor
  
- TIF, JPG & AUTOCAD formats are acceptable
  - ✓ The graphics department will work with what you have

# Figures and Artwork



- Color Figures
  - ✓ PDF Downloads
  - ✓ Online Volumes

- SVG Figures
  - ✓ Searchable
  - ✓ Expandable





---

# BALLOTING

# Balloting



- ASTM has three levels of balloting:
  - ✓ Subcommittee
  - ✓ Main Committee/Concurrent
  - ✓ Society
  
- Ballots are open for a minimum of 30 days, all ballots are done online
  
- Negatives and Comments received during the ballot
  
- Separate session on [Balloting & Handling Negative Votes](#)

# Electronic Revision Preparation

---

- Always keep a clean copy of standard
- Determine if entire document is to be balloted, or just sections
- Consider how much context is needed for a revision to make sense to the voter
- Use Track Changes to make revisions

# Example of Revision on Ballot



This document is not an ASTM standard; it is under consideration within an ASTM technical committee but has not received all approvals required to become an ASTM standard. You agree not to reproduce or circulate or quote, in whole or in part, this document outside of ASTM Committee/Society activities, or submit it to any other organization or standards bodies (whether national, international, or other) except with the approval of the Chairman of the Committee having jurisdiction and the written authorization of the President of the Society. If you do not agree with these conditions please immediately destroy all copies of the document. Copyright ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428. All Rights Reserved.



INTERNATIONAL Designation: F3219 – 19

## ITEM 1

Date: February 16, 2024

To: Subcommittee F17.65

Tech Contact: John Kurdziel (260-409-5218)

Work Item #: WK89684

Ballot Action: Revision of F3219

Rationale: ASTM F2764 and F2881 have updated their material and density requirements to permit the use of modifiers and process aids. This standard has the same material compound properties as these two other polypropylene standards, which are for sanitary and storm sewer applications, respectively. This revision to this land drainage standard will align it with those two other higher application standards.

## Standard Specification for 3 to 30 in. (75 To 750 mm) Polypropylene (PP) Corrugated Single Wall Pipe and Fittings<sup>1</sup>

This standard is issued under the fixed designation F3219; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

## 5. Materials

5.1 *Polypropylene*—Polypropylene compounds used in the manufacture of corrugated single wall pipe shall have the minimum properties as shown in Table 1. Polypropylene compounds shall be comprised of the base polypropylene virgin material and all additives, colorants, process aids, modifiers, UV inhibitors, and stabilizers. Polypropylene compounds can be pre-compounded or made in-situ during pipe extrusion by combining natural polypropylene material with a color masterbatch or other additives, or both. Conditioning, sampling, preparation and testing of molded specimens shall be in accordance with the requirements in Specification D4101. Material for preparation of molded specimens shall be taken from the pipe. Compounds that have a higher cell classification in one or more performance properties shall be permitted provided the density of the base resin final formulation shall not exceed 0.0343 lb./in.<sup>3</sup> (0.950 g/cm<sup>3</sup>) 0.0509 lb./in.<sup>3</sup> (1.410 g/cm<sup>3</sup>) and all other product requirements are met.

TABLE 1 Polypropylene Compound Properties

Property	ASTM Test Method	Units (SI Units)	Minimum Value
Melt Flow Rate (at 446°F (230°C))	D1238	g/10 min	0.15
Density	D792, D1505	lb/in <sup>3</sup> (g/cm <sup>3</sup> )	0.0325 (0.900)
Tensile Strength at Yield	D638	psi (N/mm <sup>2</sup> )	3500 (24.1)
Elongation at Yield	D638	% (%)	5 (5)
Flexural Modulus (1% secant)	D790	psi (N/mm <sup>2</sup> )	175,000 (1200)
IZOD Impact Strength (73°F(23°C))	D256	ft-lb/in (J/m)	8 (427)
Oxidative-Induction Time (392°F (200°C))	D3895	min	25

5.2 *Color and Ultraviolet (UV) Stabilization*—The pipe shall be colored or black. Black polypropylene compounds shall have between 2.0 and 3.0 percent carbon black when tested in accordance with the procedures in Test Method D4218 or in combination with D5630. Colored polypropylene compounds shall be protected from Ultraviolet (UV) degradation with UV stabilizers. Colored polypropylene compounds shall contain sufficient UV protection to allow pipe made according to this standard to be stored outdoors for at least two years from the date of manufacture without degradation of the stated properties.

# While the Standard is Balloting

---

- Your committee editor begins the editing process, which includes:
  - ✓ Typesetting/converting Word document to XML
  - ✓ Ensuring the standard matches balloted draft
  - ✓ Scanning and placing artwork
  
- Ensuring that sections, tables, and figures are cited and numbered correctly:
  - ✓ This includes checking that sections and cross-references are correct (for example, See Table 1.)



# While the Standard is Balloting

---

The Editor will also:

- Verify titles of ASTM standards in the Referenced Documents section and confirm that they are all cited in the text
  
- Ensure conformance with Part G on Style, including:
  - ✓ Confirming that all mandatory sections are included and in the correct order
  - ✓ Reviewing supplier footnotes for compliance with Part F
  
- Check for general page layout, including:
  - ✓ Table and Figure placement
  - ✓ Excessive white space on each page

# Typical Corrections



- Grammar
  
- Typographical errors
  
- The editor will ensure that:
  - ✓ Certain formats or spellings appear consistently throughout the standard
  
  - ✓ Trademarked terms are replaced with generic terms (for example: “Pyrex” becomes “borosilicate glass”)
  
  - ✓ Technical terms are spelled in accordance with Form and Style for ASTM Standards. A list of preferred spelling can be found in Part G

# Editorial versus Technical Changes

---

- Editorial changes do NOT change the meaning or intent of a standard and do NOT require balloting.
  - ✓ Changes can be made during review process
  
- Technical changes do CHANGE the meaning or intent of a standard and REQUIRE balloting.
  - ✓ Changes must be made on the next ballot

# Editorial Change Examples

---



- Address changes for referenced organizations, sole sources of supply, etc.
- Misspelled words
- Minor text edits that improve readability but do not change the content
- Update titles of standards (ASTM and others)

# Technical Change Examples

---

- Changing permissive language to mandatory language: For example, may to shall
- Text edits that change the intent of standard
- Changing a single units of measurement standard to a dual measurement standard. For example, SI units only to Combined SI/Inch-Pound units
- Changing values in tables and equations (unless supported by existing balloted text)

---

# REVIEW & PUBLICATION

# Item Receives Approval



- An item will receive official Society approval on the 1st or 15th of the month.
  
- Once an item receives Society approval:
  - ✓ The editor is notified
  - ✓ The editor prepares the standard for review by the technical contact listed on the ballot
  - ✓ If editorial changes were provided during the balloting process or as the result of negative vote resolution, the editor includes those changes in the standard sent for review

# Review Process

---



- The editor e-mails a licensed PDF and redlined PDF of the standard for review.
  - ✓ This redline is not an ASTM standard and is intended only to provide the user of an ASTM standard an indication of what changes have been made to the previous version. In all cases only the current version of the standard as published by ASTM is to be considered the official document.
  
- This email:
  - ✓ Will provide a PDF of the ballot item
  
  - ✓ Will include any questions or comments from your editor



# Reviewer's Checklist

---

- The reviewer should ensure that all balloted information appears correctly in the printed standard
  
- Address any questions the editor may have posed in the review email or on the review PDF
  
- Typical questions include:
  - ✓ Citation of Referenced Documents in the text
  - ✓ Addition of Keywords
  - ✓ References to numbered sections that don't appear in the text
  
- The reviewer should respond to the editor by the stated deadline. This ensures the timeliest publication of the new standard. Contact the editor immediately if an extension is needed.

# Final Publication



- Editor sends final approved standard to ASTM website team
  - No further changes can be made to this version of the standard, unless an epsilon is issued, or the standard is balloted again.
  
- Within several days, the standard is available on the website and on Compass
  - The ASTM Standards Tracker can alert you when it is available.
  
- The ASTM website will always have the most current version of the standard.
  
- The printed Annual Book of Standards will contain the standards available at the time of its publication

# XML and Standard Formats



## Why XML?

- XML is the backbone of many features of our standards that make them user-friendly.
- Editing/converting your standard to XML allows us to:
  - ✓ Hyperlink figures, tables, and sections within your standard
  - ✓ Enables ASTM to highly structure our content so that it is consistent across standards and formats.
  - ✓ Provide members and customers with different formats of the standards

```
astmstd xmlns:m="http://www.w3.org/1998/Math/MathML" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNam
fm
  pubinfo pubinfo
  stdcat type="standard"
  astmdesig type="F2291"
  yeardate 21
  measure type="unknown"
  titlegrp
    titleprefix Standard Practice for
    title Design of Amusement Rides and Devices fnr rid="fn00001"
  fn id="fn00001"
    ¶ This practice is under the jurisdiction of ASTM Committee commdesig F24 on commtitle Amusement Rides and
    Devices commtitle and is the direct responsibility of Subcommittee subdesig F24.24 subdesig on subtitle
    Design and Manufacture subtitle .P
    ¶ Current edition approved apprdate May 1, 2021. Published pubdate June 2021. Originally approved in 2003.
    Last previous edition approved in 2020 as astmref design="F2291" – 20. DOI: 10.1520/F2291-21.P fn
    headnote headnote
  titlegrp
fm
prac
scope id="s00001" 1. Scope
  subsec1 id="s00002" 1.1 ¶ This practice establishes criteria for the design of amusement rides, devices
  and major modifications to amusement rides and devices manufactured after the effective date of
  publication except as noted in secr rid="s00003" .P
  subsec1
  subsec1 id="s00003" 1.2 ¶ This practice shall not apply to:P
  subsec2 id="s00004" 1.2.1 ¶ Patron directed amusement rides or devices (for example, go karts,
```

# Final Version/PDF



- PDF version is the official version of the standard.
- Two-column format
- Blue links redirect the user to our website
- Red internal links help with navigation within the document.

This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.

 Designation: F2291 – 21

## Standard Practice for Design of Amusement Rides and Devices<sup>1</sup>

This standard is issued under the fixed designation F2291; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last approval. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or approval.

### 1. Scope

1.1 This practice establishes criteria for the design of amusement rides, devices and major modifications to amusement rides and devices manufactured after the effective date of publication except as noted in 1.2.

1.2 This practice shall not apply to:

- 1.2.1 Patron directed amusement rides or devices (for example, go karts, bumper cars, bumper boats),
- 1.2.2 Artificial climbing walls,
- 1.2.3 Air-supported structures,
- 1.2.4 dry slides,
- 1.2.5 coin operated rides,
- 1.2.6 Amusement rides or devices that involve the purposeful immersion of the patron's body partially or totally in the water and involves more than incidental patron water contact (for example, pools, water slides, lazy rivers, interactive aquatic play devices),
- 1.2.7 Amusement rides and devices whose design criteria are specifically addressed in another ASTM standard,
- 1.2.8 Portions of an amusement ride or device unaffected by a major modification,
- 1.2.9 Upgrades to electrical wiring, electrical motors and electrical components of amusement rides and devices provided the original design and safety criteria are maintained or enhanced, and
- 1.2.10 Pre-existing designs manufactured after the effective date of publication of this practice if the design is service proven or previously compliant and the manufacturer provides:
  - 1.2.10.1 A historical summary of the amusement ride, device or major modification, and
  - 1.2.10.2 A statement that the design is service proven or previously compliant as specified by Section 3.
  - 1.2.10.3 Amusement rides and devices, and major modifications to amusement rides and devices may qualify as "previously compliant" for five years following the date of publication of this practice. Thereafter, amusement rides and devices, and major modifications to amusement rides and devices must qualify as "service proven" or meet the requirements of this practice.

1.3 This practice includes an annex (mandatory), which provides additional information (for example, rationale, background, interpretations, drawings, commentary, and so forth) to improve the user's understanding and application of the criteria presented in this practice. The annex information shall be interpreted as mandatory design criteria.

1.4 This practice includes an appendix (non-mandatory), which provides additional information (for example, rationale, background, interpretations, drawings, commentary, and so forth.) to improve the user's understanding and application of the criteria presented in this practice. The appendix information shall not be interpreted as mandatory design criteria.

1.5 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.6 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

### 2. Referenced Documents

2.1 *ASTM Standards:*<sup>2</sup>

- F770 Practice for Ownership, Operation, Maintenance, and Inspection of Amusement Rides and Devices
- F1159 Practice for Design of Amusement Rides and Devices that are Outside the Parview of Other F24 Design Standards
- F1193 Practice for Quality, Manufacture, and Construction of Amusement Rides and Devices
- F2137 Practice for Measuring the Dynamic Characteristics of Amusement Rides and Devices
- F2374 Practice for Design, Manufacture, Operation, and

<sup>1</sup> This practice is under the jurisdiction of ASTM Committee F24 on Amusement Rides and Devices and is the direct responsibility of Subcommittee F24.24 on Design and Manufacture.  
Current edition approved May 1, 2021. Published June 2021. Originally approved in 2010. Last previous edition approved in 2020 as F2291 – 20. DOI: 10.1520/F2291-21.

<sup>2</sup> For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For Annual Book of ASTM Standards volume information, refer to the standard's Document Summary page on the ASTM website.


Copyright © ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2958, United States

# Redline Version



- Sent during review
- Available as a bundled product on the public website
- Available as a feature in Compass
  - In Compass, a version comparison can be generated between non-consecutive versions of a standard.

This document is not an ASTM standard and is intended only to provide the user of an ASTM standard an indication of what changes have been made to the previous version. Because it may not be technically possible to adequately depict all changes accurately, ASTM recommends that users consult prior editions as appropriate. In all cases only the current version of the standard as published by ASTM is to be considered the official document.

 Designation: ~~F2291~~—~~20~~ ~~F2291~~—~~21~~

**Standard Practice for  
Design of Amusement Rides and Devices<sup>1</sup>**

This standard is issued under the fixed designation F2291; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

**1. Scope**

1.1 This practice establishes criteria for the design of amusement rides, devices and major modifications to amusement rides and devices manufactured after the effective date of publication except as noted in 1.2.

1.2 This practice shall not apply to:

1.2.1 Patron directed amusement rides or devices (for example, go karts, bumper cars, bumper boats),

1.2.2 Artificial climbing walls,

1.2.3 Air-supported structures,

1.2.4 dry slides,

1.2.5 coin operated rides,

1.2.6 Amusement rides or devices that involve the purposeful immersion of the patron's body partially or totally in the water and involves more than incidental patron water contact (for example, pools, water slides, lazy rivers, interactive aquatic play devices),

1.2.7 Amusement rides and devices whose design criteria are specifically addressed in another ASTM standard,

1.2.8 Portions of an amusement ride or device unaffected by a major modification,

1.2.9 Upgrades to electrical wiring, electrical motors and electrical components of amusement rides and devices provided the original design and safety criteria are maintained or enhanced, and

1.2.10 Pre-existing designs manufactured after the effective date of publication of this practice if the design is service proven or previously compliant and the manufacturer provides:

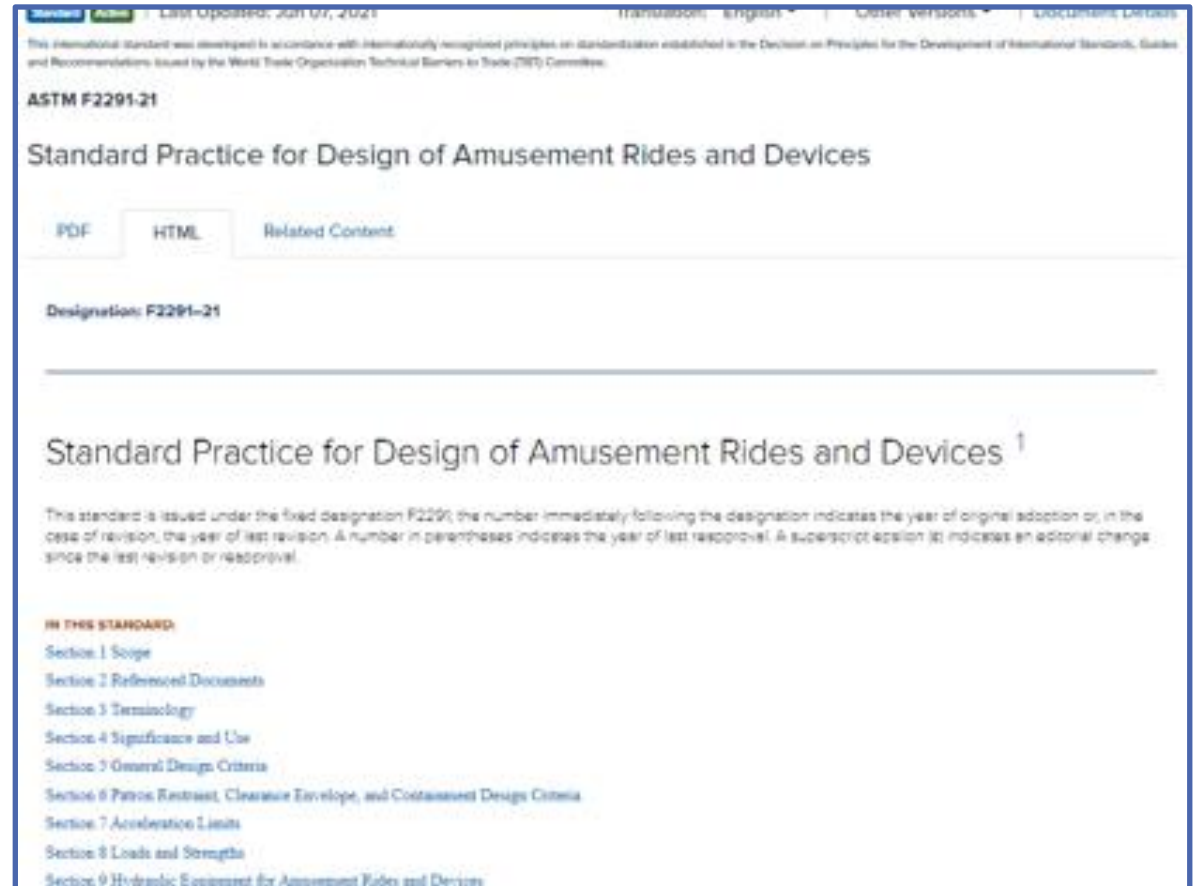
1.2.10.1 A historical summary of the amusement ride, device or major modification, and

1.2.10.2 A statement that the design is service proven or previously compliant as specified by Section 3.

1.2.10.3 Amusement rides and devices, and major modifications to amusement rides and devices may qualify as "previously

<sup>1</sup> This practice is under the jurisdiction of ASTM Committee F24 on Amusement Rides and Devices and is the direct responsibility of Subcommittee F24.24 on Design and Manufacture.  
Current edition approved May 14, 2021. Published June 1, 2021. Originally approved in 2003. Last previous edition approved in 2019 as F2291—19(F2291—21)  $\epsilon$ . DOI: 10.1520/F2291-21

- Great for use on mobile devices, while out in the field, or away from the office.
- SVG figures are incorporated
  - These are searchable and don't degrade when expanded.



The screenshot shows the ASTM F2291-21 web page. At the top, it indicates the standard was last updated on July 07, 2021, and provides options for translation (English) and other versions. Below this, the title "ASTM F2291-21 Standard Practice for Design of Amusement Rides and Devices" is displayed. There are three tabs: "PDF", "HTML" (which is selected), and "Related Content". The "Designation: F2291-21" is shown below the tabs. The main heading "Standard Practice for Design of Amusement Rides and Devices <sup>1</sup>" is followed by a paragraph explaining the standard's designation and revision history. A section titled "IN THIS STANDARD:" lists the following sections: Section 1 Scope, Section 2 Referenced Documents, Section 3 Terminology, Section 4 Significance and Use, Section 5 General Design Criteria, Section 6 Patric, Restraint, Clearance Envelope, and Cost-assessed Design Criteria, Section 7 Acceleration Limits, Section 8 Loads and Strengths, and Section 9 Hydraulic Equipment for Amusement Rides and Devices.

# Review

---



- New Standard Activity
- Work Items
- Development Tools
- Writing Tools
- ASTM Standard
- Revisions
- Review
- Publication

# Additional Classroom for Member Trainings

---

- [Balloting & Handling Negative Votes](#)
- [WebEx Training](#)
- [Roster Maintenance](#)
- [Task Group Chair & Technical Contact Responsibilities](#)
- [Subcommittee Chair's Duties and Responsibilities](#)
- [Interlaboratory Studies Program](#)
- [Planning Symposia & Workshops](#)
- [Collaboration Area Training](#)





---

# QUESTIONS?



ASTM INTERNATIONAL  
Helping our world work better



# Thank you for your attention!

[www.astm.org](http://www.astm.org)