

**LOG OF MEETING
DIRECTORATE FOR ENGINEERING SCIENCES**

SUBJECT: ASTM F24 Committee Meeting on Amusement Rides and Devices

DATE OF MEETING: February 2 through 5, 2021

PLACE OF MEETING: Hilton Atlanta, Atlanta, GA, and virtual

LOG ENTRY SOURCE: Daniel Taxier (ESMC)

COMMISSION ATTENDEES: Daniel Taxier (ESMC), Joe Williams (EXC), Tom Caton (ESMC)

NON-COMMISSION ATTENDEES: Contact ASTM for attendee list.

SUMMARY OF MEETING:

This was the winter meeting of the ASTM F24 Committee on Amusement Rides and Devices. The committee meets semiannually. The related subcommittees and task groups met to discuss ongoing standards development and other factors pertaining to the safety of amusement rides and devices. CPSC staff attended the following task group and subcommittee meetings:

F24.20 Risk Assessment Task Group

The task group is developing a new core standard that will provide guidance for designers to conduct a safety-based risk assessment of amusement rides and devices. The standard is intended to be applicable to all amusement rides and attractions while harmonizing with existing lifecycle standards. A draft was balloted in the subcommittee for feedback, with the ballot closing at the end of October; several of the comments were found to be persuasive. The task group discussed several common themes in the negatives:

- Clarification on when a risk assessment is required.
- Clarification on how the risk assessment is applied to portable rides set up in multiple locations.
- The difference between a hazardous event (such as unintended motion of a ride vehicle) and a harmful event (such as an injury resulting from unintended motion of a ride vehicle).
- Roles and responsibilities for the parties conducting the risk assessment.

This task group is coordinating with the Lifecycle task group and the Modifications task group. Work is continuing on the ballot language, with a ballot to the main committee expected in summer 2022.

F24.24 Evacuation Task Group

This task group discussed the results of a recent ballot on evacuation analysis in F2291 Standard Practice for Design of Amusement Rides and Devices. Some negatives said the evacuation analysis requirements did not offer enough guidance as to what needs to be included or addressed. The ballot author will discuss the negatives with the voters and with ASTM to determine if an editorial change can be made to address the negatives, and if not, the language will be revised and resubmitted.

F24.24 F1193 Task Group

This task group discussed the results of recent ballots for F1193 Standard Practice for Quality, Manufacture, and Construction of Amusement Rides and Devices. Four ballots were discussed:

1. A manufacturer requirement to maintain supplemental bulletin catalogs.
2. Revisions to requirements for rejected and non-conforming parts.

3. Revision to the definition of "Engineer."
4. A change in non-mandatory language ("should" to "shall").

Each of these revisions had persuasive negatives; the ballots will be rewritten and resubmitted. The task group will try to pass these ballots before summer 2022, when a new version of the standard is expected to be published

F24.24 Restraints Task Group

The negatives on three ballots discussed at the prior task group meeting in October were resolved and the ballots passed. The task group then described actions it would take prior to the next meeting, including:

- Review class 4 and 5 restraints.
- Clean up latching and locking language.
- Review the use of the terms "Restraint" and "Containment" for consistency.
- Review comments in the recently passed ballots for further actions.

CPSC staff reiterated the request from the October meeting for the task group to review the restraint and containment sections to determine whether they offer enough guidance to prevent rider ejections on spinning rides. The task group is also working with the Acceleration task group to review the restraint requirements related to lateral load in Japanese law for possible harmonization.

F24.30 Subcommittee Meeting

The F24.30 Subcommittee on Maintenance and Inspection is currently involved in updating and developing one standard: F2974 Standard Practice for Auditing Amusement Rides and Devices. The subcommittee approved the agenda and previous meeting minutes before discussing the following items:

1. A ballot updating references in F2974 passed; as a result, a new version of the standard will be published later in the year.
2. A ballot describing education requirements for auditors and inspectors is expected before the October committee meeting.
3. The subcommittee plans to update its name and scope, as the current name and scope do not match the subcommittee's responsibilities.

F24.61 Task Group on Trampoline Courts

This task group updates and develops F2970 Standard Practice for Design, Manufacture, Installation, Operation, Maintenance, Inspection and Major Modification of Trampoline Courts.

A new task group leader was announced. The task group opened with a participant providing his perspective on the initial development of the standard, with the intention of contributing to the ongoing debate about whether to include requirements for performance trampolines within F2970 or in another standard. Following the participant's remarks, the task group leader announced that, at the direction of the F24.61 Subcommittee Chair, the task group would develop requirements for performance trampolines for the F2970 standard. In addition, the task group leader requested that these updates be submitted to ASTM for balloting by mid-March, and announced weekly task group meetings to facilitate that effort.

The task group next reviewed prior ballots with negatives to consider which language to keep for the new ballot. As part of this review, CPSC staff agreed to help verify that balloted revisions to strength requirements were appropriate, based on the sources. Additionally, at the request of F24.20 (terminology subcommittee), the task group reviewed defined terms throughout F2970 which could be made more specific to the standard (for example, by adding the word "trampoline" to the front). The task group then

reviewed items of interest for which language had not yet been balloted, such as updates to the definition and duties of trampoline court attendants.

Finally, the task group discussed a possible framework for the inclusion of performance trampolines in the standard, and sub-groups were assigned to work on potential updates. The primary framework discussed at the meeting was to separate trampolines into different classes based on the airflow through the material. Three areas are going to be explored by sub-groups:

1. Design and operation requirements.
2. Patron education from an operational perspective.
3. Supervision plan requirements.

This task group will meet once weekly from February 10 to March 10 to develop a single ballot with all of the changes discussed at this meeting.

F24.61 Task Group on Air Inflated Devices

This task group updates and develops F2374 Standard Practice for Design, Manufacture, Operation, and Maintenance of Inflatable Amusement Devices.

The task group opened with a discussion of fabric flammability test methods in another standard, NFPA 701-2019 Standard Methods of Fire Tests for Flame Propagation of Textiles and Films, and how they apply to air inflated devices. The task group also discussed how testing should be appropriately documented.

The task group then discussed a previous ballot which had received negatives. Moving forward, the task group plans to split this ballot into two:

1. Move some anchoring information from an informational appendix into a mandatory annex, and make any necessary changes to the language, to create anchoring pullout strength requirements.
2. Address the quality of metallic and plastic stakes by adding inspection criteria for strength, corrosion, and deformation per the manufacturer's instructions.

The task group next considered possible modifications to requirements for inflatables utilizing water to minimize the risk of drowning. The task group will consider requirements for a manufacturer certificate label at the next meeting.

A task group member described a standard being developed by another group for inflatable impact attenuation devices (inflatable airbags). There was some discussion of how this standard could interact with F2374.

The task group will consider adding requirements to address inflatable parks in a future meeting. The task group will meet at least one more time before the March 15 deadline for next ballots to finalize the two anchoring ballots.

F24.24 Task Group on Ride Modification

The task group discussed moving away from the major/minor modification classifications in the current F24 standards, and toward a risk-based approach. This process would identify whether a change to a ride or device has an impact on safety, and would adequately mitigate any risks associated with those impacts. The group is coordinating with the Lifecycle and Risk Assessment task groups to use common language. Most of the meeting was devoted to working through a specific example involving a portable ride operator making a change to the restraint system for a ride, based on a draft worksheet. The task group will take feedback from the discussion and modify its proposal.

F24.61 Adventure Attractions Subcommittee Meeting

The subcommittee approved the agenda and previous meeting minutes. The theme for this meeting was managing risk for attractions where part of the appeal is the user's perception of risk. The subcommittee heard reports from its task groups on trampoline courts, aerial adventure courses, inflatables, land-based obstacle courses, indoor skydiving, bungee jumping, mountain coasters, and inflatable impact attenuation devices. The subcommittee has an open item to define its scope. No new business was discussed.

F24.24 Rider Eligibility Task Group

This task group was developed to consider requirements regarding the eligibility of disabled or handicapped patrons to participate in a ride or attraction. The task group had conducted a review of F2291 (Design standard) and F770 Standard Practice for Ownership, Operation, Maintenance, and Inspection of Amusement Rides and Devices to find passages where improvements could be made to existing language about rider eligibility. These changes would promote a risk-based approach to determining eligibility, and communicate those restrictions in a manner that does not arbitrarily deny entry to patrons based on the existence of a handicap. The task group will work with the F24.24 and F24.40 subcommittees develop revised language, and is looking for volunteers to assist with the work.

F24.24 Subcommittee Meeting

The subcommittee approved the agenda and previous meeting minutes, and heard reports from all of the F24.24 task groups which met during the F24 meeting, including Station Guarding, Evacuation, Electrical and Safety Related Control Systems, Documentation, Rider Eligibility, Loads and Strengths, Acceleration, F1193, AR/VR, and Restraints. Then the subcommittee discussed old business, including 10 items in an upcoming ballot revising non-mandatory language in F2291, and a review of a section discussing anti-rollback devices. A new task group was formed to revise the anti-rollback device language. The subcommittee took on new business to review and revise requirements related to single points of failure; this work was taken on by the Anti-Rollback Device task group. The subcommittee chair will also develop language to enhance fall protection gap requirements.

F24 Main Committee Meeting

The committee approved the agenda and previous meeting minutes. Each of the subcommittees provided a report summarizing the activity which had occurred over the duration of the meeting. The committee also heard reports from several industry organizations. There were no votes held during the meeting.

Contact ASTM for meeting minutes. The next F24 committee meeting is expected to take place Wednesday October 12 through Saturday October 15, 2022 at Sheraton Gunter Hotel San Antonio, in San Antonio, TX.