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Euro
Attractions
Show

IAAPA europe

Harmonization of Amusement Ride Safety Standards Around the World

Mike Whithers, Disney

Global Amusement Ride Standards Harmonization

Working Towards Common World Amusement Ride Safety Standards

Greg Hale, IAAPA Safety and Maintenance Committee Chairman

Randy Davis, IAAPA Government Relations, Vice President

Mike Withers, ASTM International F - 2291 Task Force Chairman

Agenda

- Harmonization Process – Brief Overview
- CEN TC 152 – EN 13814 Revision?
- ASTM International Approach to Harmonization
- Individual Country Updates
- Harmonization Task Group Updates

World Amusement Industry Safety Standard Harmonization

IAAPA's COMMITMENT:

- Host the international harmonization effort as part of the three annual meetings in Europe, Asia and the US
- Enlist international amusement safety standard experts:
  - International and national amusement industry organizations (e.g. IAAPA, EAASI, AIMS, RAAPA, etc.)
  - International and national standards organizations (e.g. ., ASTM International, CEN, UNI, JIS, TAAS, EMSD, NAFLIC, GOST, etc.)
- Promote the revision of existing international standards to minimize technical differences and incorporate best practices for safety
- Promote the adoption of existing international standards by developing nations without standards and by nations with existing unique standards

World Amusement Industry Safety Standard Harmonization

Through international cooperation on safety issues – the worldwide amusement parks and attractions industry will continue to be one of the safest forms of recreation available to the public.

World Meetings

DATE	LOCATION	TOPIC
November 2003	IAAPA – Orlando	Informational and Organizational
January 2004	Euro Amusement Show - Paris	Informational and Organizational
July 2004	IAAPA Asian EXPO - Singapore	Informational & Task Group on Acceleration
November 2004	IAAPA – Orlando	Informational & Task Group on Acceleration and Fencing
January 2005	Euro Amusement Show – Vienna	Informational & Task Group on Acceleration, Fencing, and Restraint Systems
July 2005	IAAPA Asian EXPO – Hong Kong	Informational & Task Group on Restraint System Requirements
November 2005	IAAPA – Atlanta	ASTM Task Group on Acceleration Limits
January 2006	Euro Amusement Show – Vienna	Restraint Systems
July 2006	IAAPA Asian EXPO – Shanghai: Status	Chinese Amusement Ride Standards & Russian Federal Standard Presentations
November 2006	IAAPA – Atlanta	ASTM Task Group on Acceleration Limits
January 2007	Euro Amusement Show – Seville	International Model Language Restraint Systems
July 2007	IAAPA Asian EXPO – Bangkok	International Model Language Acceleration Limits
November 2007	IAAPA Asian EXPO – Orlando	Informational, Setup Model Language Task Groups
January 2008	Euro Amusement Show – Nice	Informational & Task Groups on Control Systems and Restraint Systems
July 2008	Asia Attractions Expo – Macau, S.A.R.	Informational & ASTM International Standards Process
September 2008	EAS 2008 - Munich	ASTM F 24.24 First International Sub-Committee Meeting
November 2008	IAAPA - Orlando	ASTM & EN Task Groups Reports
June 2009	IAAPA - Korea	Informational and Organizational
October 2009	Euro Attractions Show - Amsterdam	Informational and Organizational – 2nd F 24.24 Sub-Committee Meeting
November 2009	IAAPA Attractions Expo – Las Vegas	Informational and Organizational

Nineteenth International Meeting

Why Support Amusement Ride Safety World Standard Harmonization?

- Incorporate international best practices for amusement rides, creating a common blueprint for ride safety throughout the world
- Leverage the thousands of hours of work that has gone into ASTM F2291, En 13814 (published 12/2004) and other international and national standards by ride safety experts
- Ensure that nations developing new amusement ride safety standards adopt international best practices and consistent global requirements
- Encourage efficient design and production processes through standardization and the minimization of product differences due to differing standards and regulations
- Have one place to incorporate “lessons learned” to continue to enhance the safety of all amusement rides worldwide

International Amusement Ride Standards Harmonization Proposal

IAAPA

Host & Meeting Organization

IAAPA Safety & Maintenance Committee

Harmonization Task Group Chairperson

Intl Amusement Industry & Standards Org. Designate Delegates & Contributing Experts

Harmonization Task Group

- EASSI
- AIMS
- ASTM Int.
- Canada/TSSA
- China/CAAPA
- RAAPA
- Japan/JIS
- CEN
- S. Korea
- Member Nations
- Hong Kong/ EMSD
- UNI
- IAAPA
- S. America
- Australia
- Singapore

Multi-Phase Approach

Phase I

Worldwide experts select “best practices” from existing standards that can be consistently incorporated into existing standards.

Phase II

Representatives influence changes within their own international standards organizations to bring about harmonization.
Commitment: ASTM International F-24 Committee will keep F-2291 revised and current with the input from the IAAPA Harmonization Committee.
CEN to revise EN 13814?

Phase III

Work together on new topics that are not sufficiently addressed in any of the existing standards so that new content is already harmonized before it is adopted into existing standards.

Initial Harmonization Task Group Focus

Paris 2004 Meeting Consensus:

- Patron Acceleration Limits and Data Measurement
- Fencing, Guardrails, Steps, Ramps and Catwalks
- Restraint System and Clearance Envelope Requirements
- Risk and Hazard Analysis
- Control Systems
- Loads and Strengths

Harmonization Process

Model Language Task Groups and Chairman:

Acceleration Limits	**Emmett Peter**
Restraint Systems, Containment and Clearance Envelope	**Mike Withers**
Loads and Strengths	**Steve Blum**
Control Systems	**Richard Barnes**
Fencing, Gates	**Chris Deaves**
Risk Assessment	**Steve King**
Guest Behavior	**Gianni Chiari**
Terminology	**All the above**

Harmonization Process

Harmonization Meeting Representation:

Standards & Regulatory Organizations:

- Albania — Drejtoria e Pergithshme e Standardizimit
- Bolivia — Instituto Boliviano de Normalizacion u Calidad
- Brazil — Brazilian Association of amusement Industries
- Canada — Canadian Technical Standards & Safety Authority
- Chile — Insittuto Nacionale de Normalization
- China — Special Equipment Inspection and Research
- Colombia — Instituto Colombiano de Norms Tecncas y Certification
- Croatia — State Office for Standardization and Metrology
- Ecuador — Instituto Ecuatoriano de Normalizacion
- Europe — Comite European De Normalisation
- Great Britain — FAFLIC, BSI, ADIPS
- Hong Kong — Electrical & Mechanical Services Department of Hong Kong S.A.R.
- Jamaica — Bureau of Standards
- Japan — Japanese Standards Association
- Netherlands — Det Norske Veritas & Voedsel en Waren Autoriteit
- Romania — Asociatia de Standardizare din Romania
- Russian — State Committee of the Russian Federation for Standardization an Metrology
- Saint Lucia — Standards Department
- Trinidad — Trinidad & Tobago Bureau of Standards
- United States — ASTM International
- Uruguay — Instituto Uruguayo de Normas Tecnicas
- Zimbabwe — Standards Association of Zimbabwe

Amusement Industry Associations – IAAPA, RAAPA, CAAPA, IAAPI, EASSI, AIMS, AAPRA, BALPPA

International Amusement Ride Standards Used to Develop Model Language

- ASTM International – F 2291- 09a Standard Practice for the Design of Amusement Rides and Devices
- European Standard – EN 13814 – Fair Ground and Amusement Park Machinery and Structure Safety
- Russia – Safety of Amusement Rides, General Requirements
- Australia – AS 3533.1 with Draft Section 2 – Amusement Rides & Devices Design and Construction
- India – Code Of Practice for Amusement Ride Safety
- Malaysia – Guidelines on Safety Management of Amusement Park Devices
- Hong Kong – Code Of Practice Amusement Rides - EMSD
- China – GB 18159-2000, GB 8408-2000 & GB 18158-2000
- Great Britain – Safety of Amusement Devices Chapter 10 Passenger Units and Containment

International Amusement Ride Safety Standards Comparison of Content

Euro Norm prEN 13814 Fairground & Amusement Park Machinery and Structures – Safety	ASTM F2291 – Practice for Design of Amusement Rides and Devices
Requirements for design and manufacture of rides and structures	**ASTM F 2291** Standard Practice for Design of amusement Rides and Devices **ASTM F 1193** Standard Practice for Quality, Manufacture, and Construction of amusement Rides and Devices
Risk reduction by prevailing design and safety measures	**ASTM F 2291 5. General Design Criteria** 5.1 *Ride Analysis:*
General	**ASTM F 2291 5. General Design Criteria** 5.1 *Ride Analysis:*
Hazard analysis	**ASTM F 2291** 5.1.1.3 *Failure Analysis*-
Risk reduction for platforms, ramps, floors, stairs and walkways	**Not covered by ASTM covered by:** **Local Building Codes** e.g. CA Code of Regulations, Title 24 Part 2
Risk reduction by the use of railings, fencing and guarding	**ASTM F 2291 14. Fencing, Guardrails, Handrails, and Gates for Amusement Rides and Devices**
Risk reduction in the case of access and egress	**ASTM F 2291 6. Patron Restraint, Clearance Envelope, and Containment Design Criteria**
Risk reduction for passenger units	**ASTM F 2291 6. Patron Restraint, Clearance Envelope, and Containment Design Criteria**
Risk reduction by special provisions	**ASTM F 2291 6. Patron Restraint, Clearance Envelope, and Containment Design Criteria**

Sample of content comparison between EN 13814 & ASTM F 2291

International Amusement Ride Safety Standards

EN 13814 Revision ?

Informal Committee Meeting Amsterdam
9/28/09 -9/29/09

ASTM International's Approach to Global Amusement Harmonization

Len Morrissey, Director - TCO Division

Harmonization: An ASTM International Experience

- **Committee F24 on Amusement Rides and Devices: A World Standard for Amusement Ride Design**
- **The need: a single, universally acceptable standard that defines acceleration limits, allowable G-forces, clearance envelopes, fencing requirements, restraint capabilities and other important aspects of amusement ride design that will be accepted in all countries.**
- **A goal from the outset: to encompass the common elements of the U.S. and existing or in-development standards from around the world in a new and comprehensive design standard.**
- **The result: Produced the World Standard for Amusement Ride Design - F2291**

International Implementation - The Strategy: Create Partnerships

- **International trade associations**
  - **IAAPA, OABA, AIMS, NARSO, WWA**
- **Federal / States / Local / International Jurisdictions**
  - **Over 30 States Reference F24 Standards in Regulation**
- **International Organizations**
  - **CSA / CEN / UNI / RAAPA**
- **Direct Participation by all Industry Stakeholders**
  - **Ride engineers, manufacturers, park owners, operators, regulators, consumer advocacy groups, and other parties**
- **Goal**
  - **Minimize Major Differences / Eliminate Duplication**
  - **Meet regulatory requirements of all countries**

Develop Creative Regional Solutions

- MoU Progam
- Updating Standards based on direct Collaboration with CEN, Australia and Others
- Region Specific Standards
- Official Translations

ASTM Memorandum of Understanding (MoU) Program

- Formal Agreements designed to:
  - Encourage, increase, and facilitate the participation of technical experts from around the world in the ASTM standards development process
  - Broaden the global acceptance and use of ASTM International standards
  - Over 60 agreements with National Standards Bodies currently in place

The CSA & ASTM F24 Partnership

- **Harmonization Subcommittee Created**
- **Goal**
  - **Compare F24 Standards and CSA Z267 Guidance**
  - **Identify differences by category**
    - **ASTM guidance is preferred**
    - **Canadian guidance is preferred and has universal application**
    - **Requirements are Canadian specific but do not have universal application (ie – Canadian electrical code requirements)**

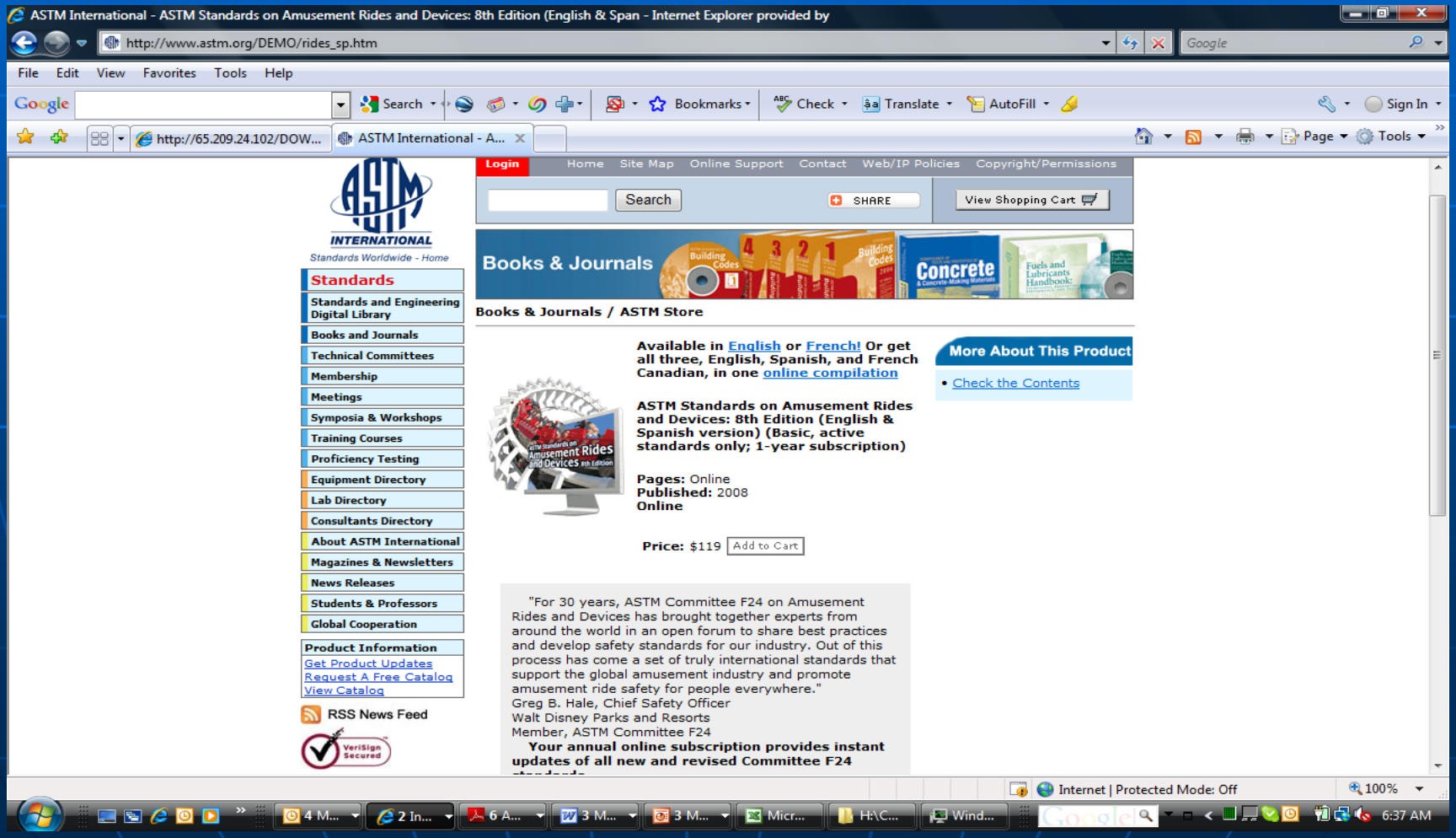
CSA & ASTM F24

- **Path Forward**
  - **Universally acceptable changes will be balloted as revisions to current ASTM Standards**
  - **Canadian Specific Requirements will be balloted as annexes or appendices to ASTM Standards**
  - **Z267 will be withdrawn and replaced by appropriate references to ASTM Standards in Canadian regulation**

Anticipated Results

- **One, universally accepted set of guidance covering amusement rides in North America**
- **Elimination of conflicting and inconsistent guidance for designers, manufacturers, inspectors, regulators and operators in the amusement industry**
- **Creation of a framework to address other nation or region specific issues within ASTM F24 Standards**

Official Translations of ASTM Standards



Thank You

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