

U.S. Consumer Product Safety Commission



16 CFR Part 1633 Standard for the Flammability (Open Flame) of Mattress Sets

ISPA EXPO 2006

February 28, 2006
San Antonio, Texas

This information has not been reviewed by, and may not necessarily reflect the views of, the Commission.

Agenda

- Scope
- General Requirements
- What Is a Prototype?
- Prototype Pooling
- Quality Assurance
- Recordkeeping
- Labeling
- On the Horizon

Scope

- Standard applies to all mattress sets introduced for sale in the U.S.
 - “Mattress” means a resilient material or combination of materials enclosed by a ticking for sleeping upon
 - e.g. futons, flip chairs, crib mattresses, youth mattresses.
 - “Mattress Set” means either (1) mattress and foundation labeled by the manufacturer for sale as a set, or (2) mattress that is labeled for sale alone

General Requirements

- Effective date – July 1, 2007
- All mattress sets produced/imported after effective date and sold in U.S. must comply and must be based on a tested prototype
 - Includes imported and renovated mattress sets
- Responsible parties
 - Domestic manufacturers
 - i.e., individual plants/factories
 - Importers
 - Renovators

General Requirements (cont'd)

- Full-scale test method
 - Specimen must be no smaller than twin-size, unless largest size made is smaller than twin
 - Specimen exposed to pair of T-shaped burners
 - Burners designed to represent localized effect of burning bedclothes
 - Burners are placed on top and side of specimen for 70 seconds and 50 seconds respectively
 - Peak heat release rate (PHRR) measured for 30 minutes – **not to exceed 200kW**
 - Total heat release (THR) measured for first 10 minutes – **not to exceed 15 MJ**

What Is a Prototype?

- “Prototype” means a specific design of mattress set that serves as a model for production units intended to be introduced into commerce and is the same as the production units with respect to materials, components, design and methods of assembly.
- Mattresses intended for sale with one or more foundations constitute separate prototypes from those intended for sale without a foundation.

Three Kinds of Prototypes

- Qualified Prototype
- Confirmed Prototype
- Subordinate Prototype

**Mattress
Design**
(e.g. Pillow Top)

**Qualified
Prototype**

**Subordinate
Prototype**
-Tick 1-

**Subordinate
Prototype**
-Tick 2-

**Subordinate
Prototype**
-Tick 3-

Qualified Prototypes

- A minimum of three specimens for each prototype must be tested and meet the performance criteria to be qualified
- If any one specimen fails the performance criteria, the prototype is not qualified

Confirmed Prototype

- Prototype based on a qualified prototype in a pooling arrangement
 - Must be the same as the qualified prototype in terms of
 - Materials
 - Components
 - Design
 - Methods of assembly
- At least one specimen must be tested and meet the performance criteria to be confirmed

Subordinate Prototypes

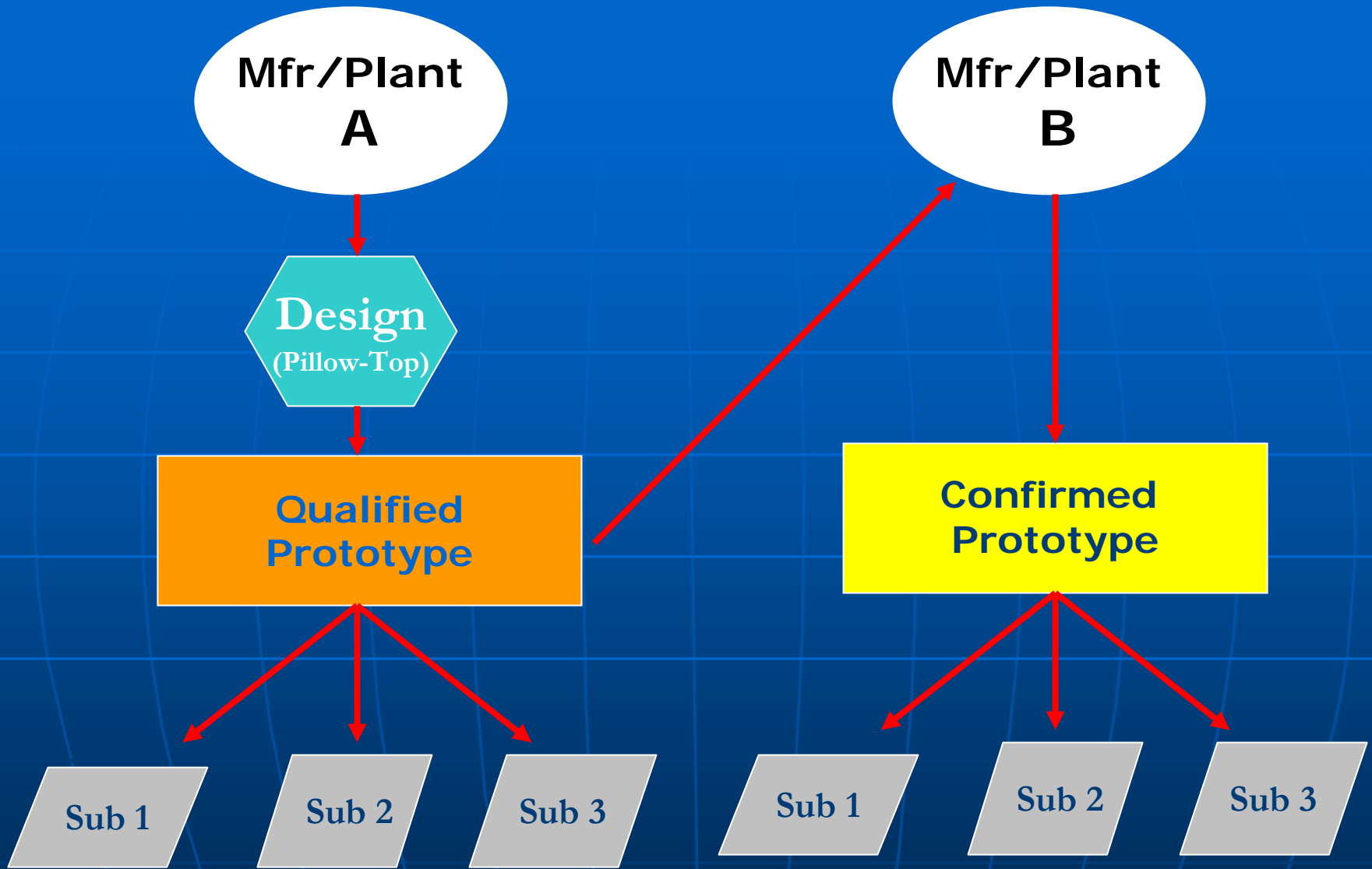
- Mattress sets based on confirmed or qualified prototypes, with differences only in
 - Size (e.g., king, queen, full, twin)
 - Ticking
 - Components or materials shown not to degrade flammability performance

Prototype Pooling

- One or more manufacturers/plants may rely on a qualified prototype produced by another manufacturer or prototype developer, provided that
 - The prototype meets the criteria of the standard (i.e., is qualified)
 - Mattress sets are the same as the qualified prototype with respect to materials, components, design, and methods of assembly
 - Confirmation test conducted by pooling manufacturer on at least one specimen for each prototype that is pooled

Prototype Pooling (cont'd)

- A “prototype developer” is a third party, such as a component supplier, that develops a prototype for use by a manufacturer
- Such prototypes may be qualified by the prototype developer or by the manufacturer
 - If qualified by the prototype developer, manufacturer must conduct confirmation test
 - If not qualified by the prototype developer, manufacturer must qualify



Prototype Pooling (cont'd)

- If confirmation test fails, the pooling manufacturer
 - Cannot manufacture mattresses/sets based on the failing prototype
 - Must correct problem and test new specimen
 - Must notify original prototype manufacturer of failure
 - Material, component and/or design flaws are causes for notification
 - Not assembly mistakes – i.e., skipped stitch

Quality Assurance

- QA program must include, at a minimum
 - Controls on all incoming materials and components to assure they are identical to those used in prototype
 - Inspection of finished products to assure they are identical to representative prototype
 - Production lot designation

Quality Assurance (cont'd)

■ Production Testing

- Not required, but strongly encouraged
- Good way to assure finished product consistently performs like qualified prototype
- Helps identify problems early and limit possible recall populations

Recordkeeping

- Test Records
- Prototype Records
- Pooling Records
- Quality Assurance Records

Preexisting Records

- Complete test, prototype and QA records needed to pool a prototype and/or create subordinate prototypes
- Incomplete records may be used to represent a particular mattress set model, provided
 - Testing done no later than 30 days after standard published in Federal Register
 - Test method followed
 - Criteria met

Records – Who, Where & How Long

- Every manufacturer (including importers) must maintain Test, Prototype, Pooling (if applicable) and Quality Assurance records in English
- Domestic manufacturers must maintain records at plant/factory where mattress sets are made
- For mattress sets made abroad, copy of records must be kept at U.S. location (indicated on label)
- Records must be kept for as long as prototype is in production and for 3 years thereafter

Test Records

- Required for Qualification, Confirmation and/or Production tests
 - Test facility location (complete physical address)
 - Type of test room
 - Room conditions
 - Temperature
 - Humidity
 - Prototype identification number
 - Time sample spent out of conditioning area before test
 - Test data
 - Peak heat release rate (PHRR)
 - Total heat release in first 10 min. (THR)

Test Records (cont'd)

- Graphic depiction of PHRR and THR over time
- Video/photographs of testing
 - Must clearly display
 - Prototype identification number
 - Date & time of test
 - Name & location of test facility
 - Photographs
 - Minimum of eight
 - One before test
 - One within first 45 sec. of start
 - Remaining six at five min. intervals
 - starting at 5 min. and ending at 30 min

Prototype Records

- Required for each Qualified, Confirmed and Subordinate Prototype
 - Unique identification number for each qualified and confirmed prototype
 - List of unique identification numbers for subordinate prototypes based on given qualified or confirmed prototype
 - List of models represented by each qualified/confirmed prototype

Prototype Records (cont'd)

- Detailed description of materials, components and methods of assembly for each qualified, confirmed and subordinate prototype, to include
 - Specs of all materials and components
 - Name and physical address of each material and component supplier

Prototype Records (cont'd)

- For Subordinate Prototypes
 - Prototype identification number of the qualified or confirmed prototype on which the subordinate prototype is based
 - Manufacturing specifications and a description of substituted materials
 - Photographs or physical specimens of the substituted materials
 - Documentation based on objectively reasonable criteria that the change in any component, material, or method of assembly will not cause the subordinate prototype to exceed the test criteria

Prototype Records (cont'd)

- FR chemicals, fibers, or other materials used
 - Identification, composition, and details of application of FR treatments and/or inherently FR fibers or other materials

Pooling Confirmation Records

- Prototype identification number assigned by qualified prototype manufacturer
- Name and complete physical address of the qualified prototype manufacturer
- Copy of qualified prototype test and prototype records

Pooling Confirmation Records (cont'd)

- Importers must maintain prototype and confirmation test records for mattress sets produced by each foreign manufacturing facility whose mattress sets that importer is importing.

Quality Assurance Records

- Written copy of QA procedures
- Records of any production tests performed
- For each qualified, confirmed and subordinate prototype, the number of mattress sets in each production lot
- Start and end dates for each production lot
- Records of any tests and/or technical evaluations of materials, components and/or methods of construction

Labeling Requirements

- Each mattress set must bear permanent, conspicuous, and legible label, to include the following in English
 - Manufacturer name
 - For imported mattress sets, importer and foreign manufacturer name
 - Manufacturer's complete physical address
 - For imported mattress sets, complete physical address of foreign manufacturer and U.S. importer (or location of records in U.S.)
 - Month and year of manufacture
 - Model identification
 - Prototype identification number

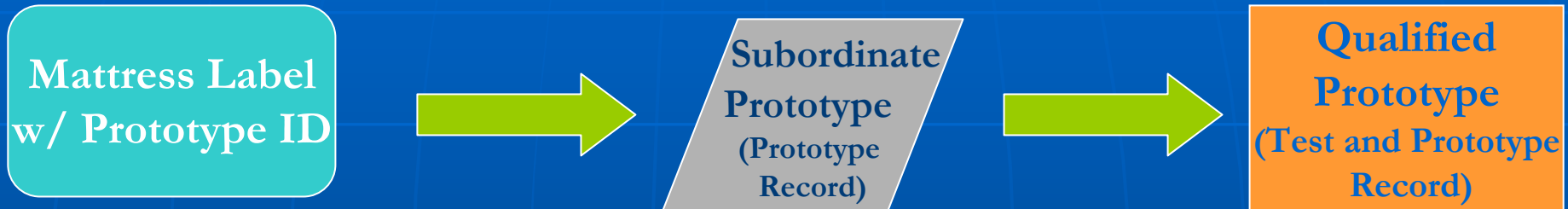
Labeling Requirements (cont'd)

- Certification that mattress complies with the standard either with or without a designated foundation, or both.
- Statement identifying whether the manufacturer intends the mattress set to be sold alone, with a foundation, or both
- The reverse side of the label may show same information in any other language

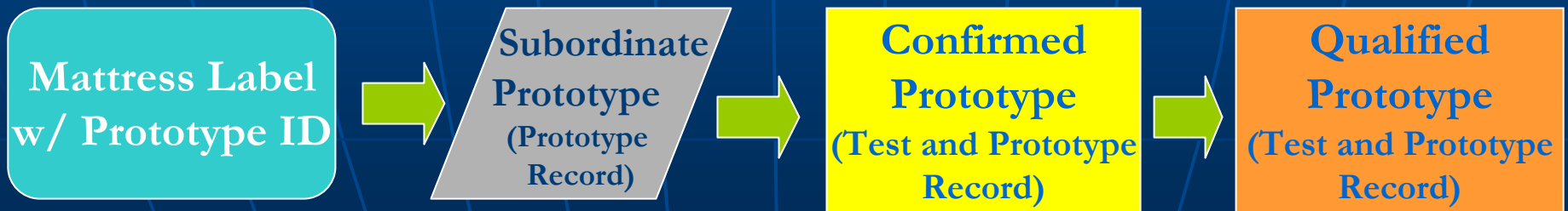
Labeling Requirements (cont'd)

- Label content must meet specified wording, type size, font and dimensional requirements
- No information other than that specified is permitted to appear on the label
- Labeling requirements
 - Enable consumers to choose correct foundation, if any
 - Ensure that information is not detracted from or minimized
 - Prevent potential confusion for state labeling officials
 - Facilitate compliance activities

From Finished Mattress to Qualified Prototype



OR, IN THE CASE OF POOLING



Labels for Domestic Mattress with Foundation

Stitch Line

Manufactured by:
Company Name
Street
City, State ZIP

Date of Manufacture:
MM/YYYY

Model: <Model ID>

Prototype ID: <Prototype ID>

This mattress meets the requirements of
16 CFR §1633 (federal flammability
(open flame) standard for mattress sets)
when used with foundation <ID> .

THIS MATTRESS IS INTENDED TO
BE USED WITH FOUNDATION(S):

<FOUNDATION ID>

Mattress Label

Stitch Line

Manufactured by:
Company Name
Street
City, State ZIP

Date of Manufacture:
MM/YYYY

Model: <Model ID>

Prototype ID: <Prototype ID>

Foundation ID: <ID>

Foundation Label

Labels for Imported Mattress with Foundation

Stitch Line

Manufactured by:
Foreign Company Name
Street
City, State
Country

Date of Manufacture:
MM/YYYY

Importer/U.S. Records Location:
Importer Name
Street
City, State ZIP

Model: <Model ID>

Prototype ID: <Prototype ID>

This mattress meets the requirements of
16 CFR §1633 (federal flammability
(open flame) standard for mattress sets)
when used with foundation <ID>.

THIS MATTRESS IS INTENDED TO
BE USED WITH FOUNDATION(S):

<FOUNDATION ID>

Mattress Label

Stitch Line

Manufactured by:
Foreign Company Name
Street
City, State
Country

Date of Manufacture:
MM/YYYY

Importer/U.S. Records Location:
Importer Name
Street
City, State ZIP
Model: <Model ID>

Prototype ID: <Prototype ID>

Foundation ID: <ID>

Foundation Label

Labels for Domestic and Imported Mattresses Alone

Stitch Line

Manufactured by:
Company Name
Street
City, State

Date of Manufacture:
MM/YYYY

Model: <Model ID>

Prototype ID: <Prototype ID>

This mattress meets the requirements of
16 CFR §1633 (federal flammability
(open flame) standard for mattress sets)
when used without a foundation

**THIS MATTRESS
IS INTENDED TO BE USED
WITHOUT A FOUNDATION**

Domestic Mattress

Stitch Line

Manufactured by:
Foreign Company Name
Street
City, State
Country

Date of Manufacture:
MM/YYYY

Importer/U.S. Records Location:
Importer Name
Street
City, State ZIP

Model: <Model ID>

Prototype ID: <Prototype ID>

This mattress meets the requirements of
16 CFR §1633 (federal flammability (open
flame) standard for mattress sets) when
used without a foundation.

**THIS MATTRESS
IS INTENDED TO BE USED
WITHOUT A FOUNDATION**

Imported Mattress

Labels for Domestic and Imported Mattresses Alone and with Foundation

Stitch Line

Manufactured by:
Company Name
Street
City, State

Date of Manufacture:
MM/YYYY

Model: <Model ID>

Prototype ID: <Prototype ID>
<Prototype ID>

This mattress meets the requirements of
16 CFR §1633 (federal flammability
(open flame) standard for mattress sets)
when used without a foundation or with
foundations <ID>

**THIS MATTRESS
IS INTENDED TO BE USED
WITHOUT A FOUNDATION
OR
WITH FOUNDATION(S):
<FOUNDATION ID>**

Domestic Mattress

Stitch Line

Manufactured by:
Foreign Company Name
Street
City, State
Country

Date of Manufacture:
MM/YYYY

Importer/U.S. Records Location:
Importer Name
Street
City, State ZIP

Model: <Model ID>

Prototype ID: <Prototype ID>
<Prototype ID>

This mattress meets the requirements of
16 CFR §1633 (federal flammability (open
flame) standard for mattress sets) when
used without a foundation or with
foundations <ID>

**THIS MATTRESS
IS INTENDED TO BE USED
WITHOUT A FOUNDATION
OR
WITH FOUNDATION(S):
<FOUNDATION ID>**

Imported Mattress

On the Horizon

- CPSC looking into amending cigarette standard for mattresses - 16 CFR 1632
 - ANPR published in Federal Register on June 23, 2005
- CPSC Office of Compliance also considering enforcement policy to reduce 16 CFR 1632 testing burden while many new designs are being tested to meet the new standard

U.S. Consumer Product Safety Commission

16 CFR Part 1633

Standard for the Flammability (Open Flame) of Mattress Sets



Contact Information

Jason J Hartman
301-504-7591
jhartman@cpsc.gov