Towards a Safe Playground

Fall School Workshop, 2016

Playground Guidelines

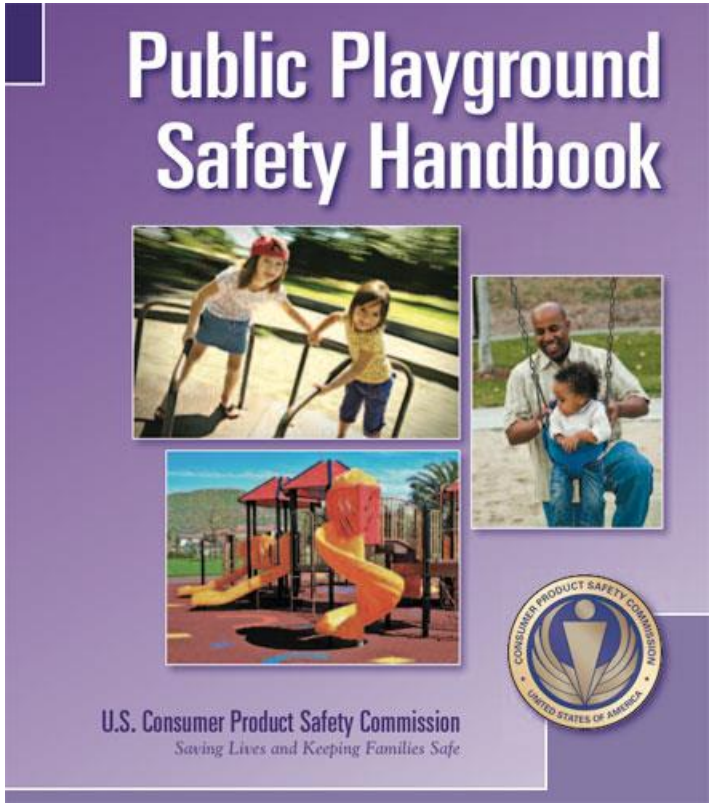
- CPSC Publication No. 325- *Handbook for Public Playground Safety*

  A Federal Guideline

- ASTM Standard F-1487-11

  An International

  Voluntary Standard



Playground Guidelines

- 2010 Standards for Accessible Design
- ASTM F195-Wheelchair Accessibility on Surfacing
- ASTM F1292- Impact Attenuation
- ASTM F2223- Playground Surfacing
- ASTM F2049- Fences and Barriers

Playground Guidelines

Not covered under these guidelines:

Where Injuries Occur

- 76% on public playgrounds
  - 45% schools
  - 10% daycare
  - 31% parks
  - 14% other
- 24% residential
- 53% climbing equipment
- 19% swings
- 17% slides

Developmental Differences

Ages of children injured:

- 3% - under 2
- 27% - between 2-4
- 56% - between 5-9
- 12% - between 10-12
- 2% - between 13-14

Age-Appropriate Activities

Playgrounds designated as:

- 6 months-23 months
- 2-5 years old
- 5-12 years old

Layout of playground should separate age groups

Certain equipment not recommended for 2-5 (free-standing arch or flexible climbers, chain or cable walks, fulcrum seesaws, log rolls, track rides, vertical sliding poles)

Public Playground Injury Statistics

FALLS are the most common cause of playground injuries (**79%**)

- 68% falls to surface
- 10% falls to other parts of the equipment
- 1% unknown

Public Playground Injury Statistics

- **IMPACT 11% -**

  with stationary equipment -8%; with moving equipment -3%

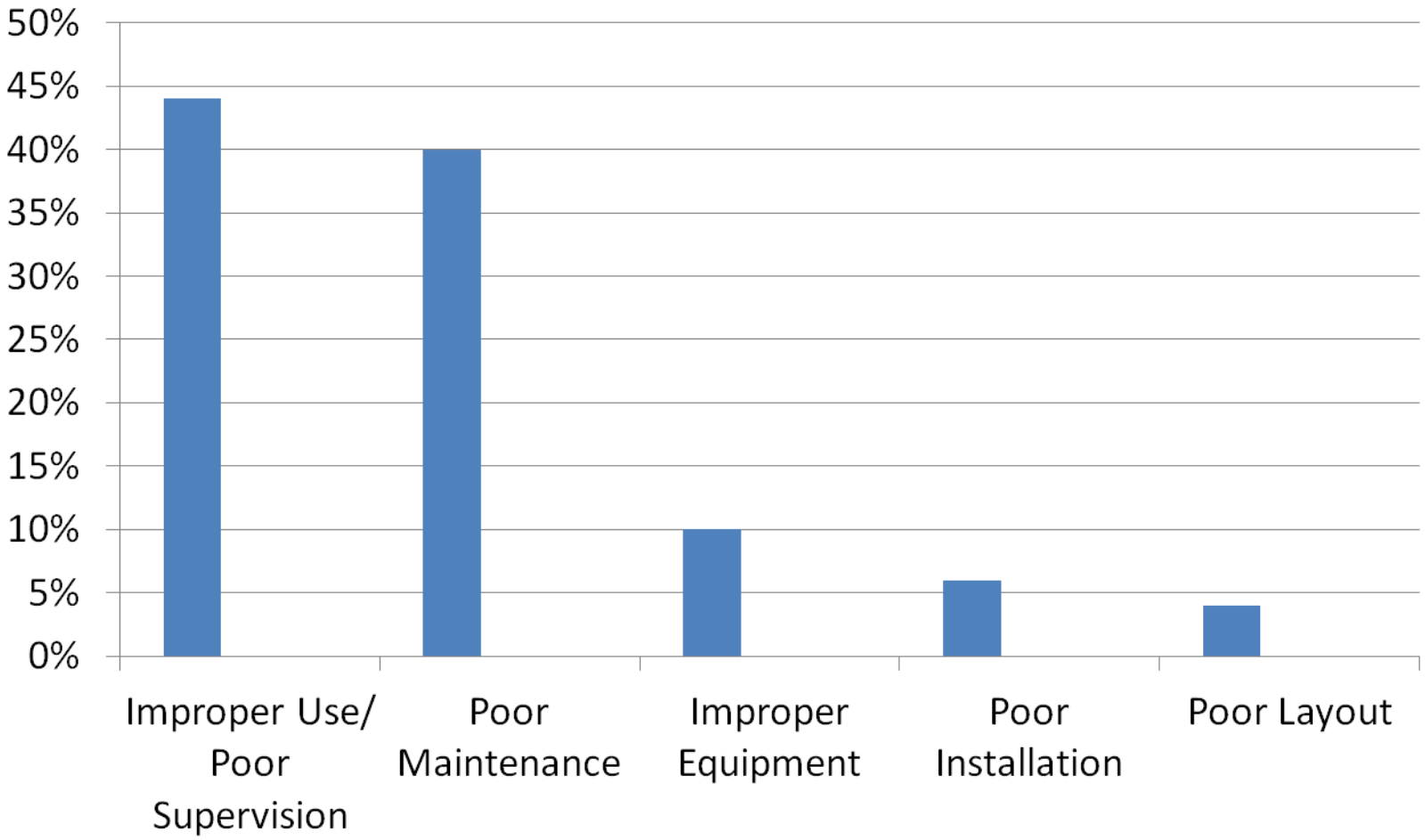
- **MISC. 10%**

  Miscellaneous injuries (Generally contact with crush points and sharp edges.)

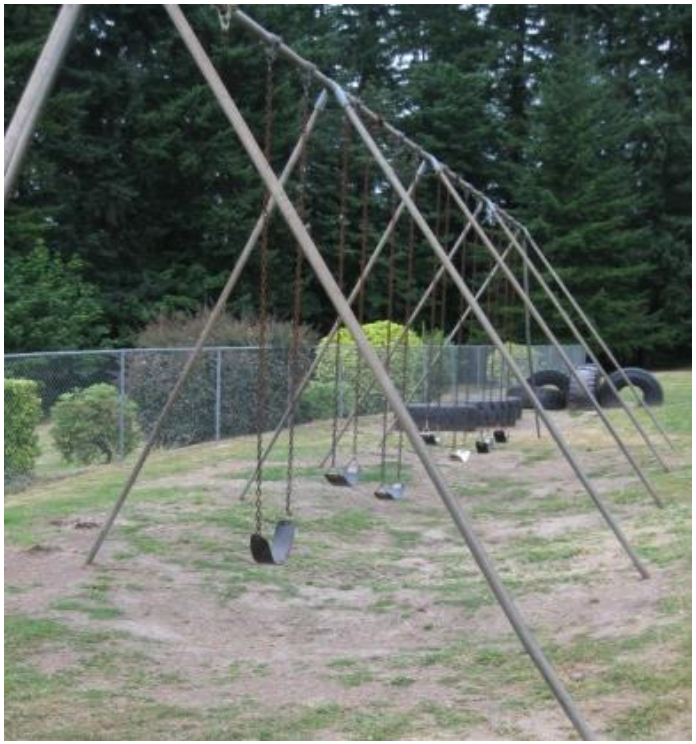
Major Causes of Death/Serious Injury

1. Entanglement… of clothing, strings, ropes
2. Falls… onto hard underlying surfacing
3. Head and Neck Entrapment…in equipment openings
4. Impact…by tipped or loose equipment, or moving swings

Factors that Contribute to Injuries



Duty: provide safe facilities and equipment



Witch's Hat
Swinging Gate
Animal Swing

Giant Stride

https://preservationinpink.wordpress.com

Inspection Program

Identifies hazards on existing playgrounds resulting from rapid or evolving changes:

- Vandalism or Storm Damage
- Exposure/Deterioration
- Wear
- Breakage
- Lack of Maintenance
- Improper Use

Inspection Program

The inspection and maintenance schedule should be based on:

- How much the playground is used
- The kind of equipment present
- The condition of the equipment
- The condition's of the playground environment

Frequency of Inspections

Low Frequency

Seasonal, in-depth
Focus: Preventive Maintenance

High Frequency

Frequently, identifies change. Focus: Routine Maintenance

Inspection Program- Documentation

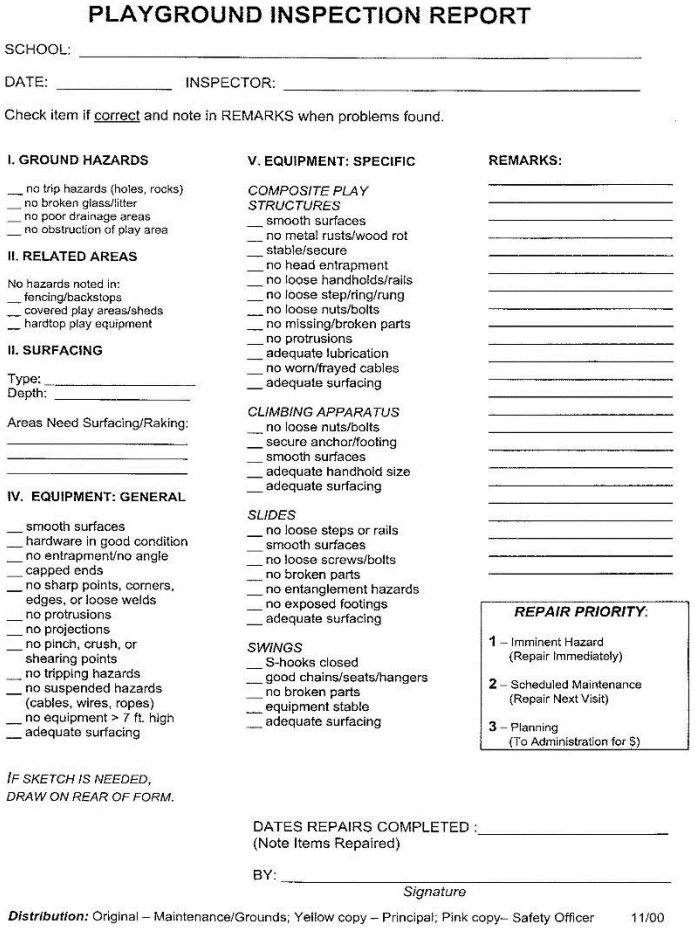
- Provides evidence of your safety efforts
- Use the manufacturer's checklist or create your own to guide the inspection process.

Recordkeeping

Recordkeeping, a key part of an inspection and maintenance program.

Be sure to keep records of:

- Inspections
- Maintenance repairs
- Equipment modification
- Accidents/injuries
- Manufacturer's assembly and installation instructions



PLAYGROUND INSPECTION REPORT

SCHOOL: _____

DATE: _____ INSPECTOR: _____

Check item if correct and note in REMARKS when problems found.

I. GROUND HAZARDS

__ no trip hazards (holes, rocks)
__ no broken glass/litter
__ no poor drainage areas
__ no obstruction of play area

II. RELATED AREAS

No hazards noted in:
__ fencing/backstops
__ covered play areas/sheds
__ hardtop play equipment

II. SURFACING

Type: _____
Depth: _____

Areas Need Surfacing/Raking:
_____
_____
_____

IV. EQUIPMENT: GENERAL

__ smooth surfaces
__ hardware in good condition
__ no entrapment/no angle
__ capped ends
__ no sharp points, corners, edges, or loose welds
__ no protrusions
__ no projections
__ no pinch, crush, or shearing points
__ no tripping hazards
__ no suspended hazards (cables, wires, ropes)
__ no equipment > 7 ft. high
__ adequate surfacing

IF SKETCH IS NEEDED, DRAW ON REAR OF FORM.

V. EQUIPMENT: SPECIFIC

COMPOSITE PLAY STRUCTURES
__ smooth surfaces
__ no metal rusts/wood rot
__ stable/secure
__ no head entrapment
__ no loose handholds/rails
__ no loose step/ring/rung
__ no loose nuts/bolts
__ no missing/broken parts
__ no protrusions
__ adequate lubrication
__ no worn/frayed cables
__ adequate surfacing

CLIMBING APPARATUS
__ no loose nuts/bolts
__ secure anchor/footing
__ smooth surfaces
__ adequate handhold size
__ adequate surfacing

SLIDES
__ no loose steps or rails
__ smooth surfaces
__ no loose screws/bolts
__ no broken parts
__ no entanglement hazards
__ no exposed footings
__ adequate surfacing

SWINGS
__ S-hooks closed
__ good chains/seats/hangers
__ no broken parts
__ equipment stable
__ adequate surfacing

REMARKS:

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REPAIR PRIORITY:

1 – Imminent Hazard (Repair Immediately)

2 – Scheduled Maintenance (Repair Next Visit)

3 – Planning (To Administration for $)

DATES REPAIRS COMPLETED : _____
(Note Items Repaired)

BY: _____
Signature

Distribution: Original – Maintenance/Grounds; Yellow copy – Principal; Pink copy– Safety Officer 11/00

Types of Hazards

Inadequate Surfacing

Mechanical/Hardware

Entanglement and Impalement

Sharp Points, Corners and Edges

Pinch, Crush and Shear Point

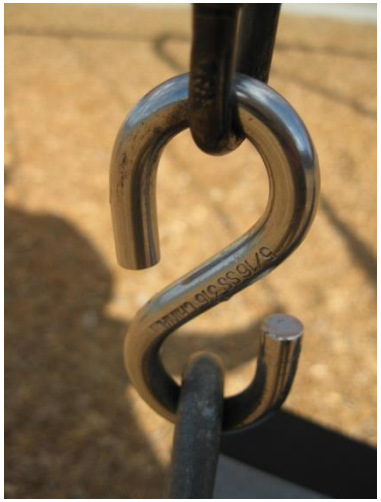
Entrapment

Tripping Hazards

Suspended Hazards

Fall Hazards

Environmental



Surfacing

- Lack of, improper or poorly maintained surfacing is the leading cause of playground injuries
- Needs regular attention

Surfacing

- Will reduce the likelihood of a serious head injury
- Will reduce the number and severity of injuries
- Will not prevent all injuries
- Is not designed to protect from long bone fractures

Surfacing

Acceptable surfacing:

- Pea Gravel
- Sand
- Engineered wood fiber
- Shredded/recycled rubber mulch
- Wood mulch
- Wood chips

Surfacing

Acceptable Surfacing:

- Unitary Materials
- Tiles and mats
- Poured in place rubber

Surfacing

Not Acceptable:

- Concrete
- Asphalt
- Grass
- Dirt

Loose-Fill Surfacing

- Determine whether loose-fill surfacing is adequate:
  - A minimum of 9 inches (compressed) is recommended.
  - Mark that depth on the posts of the equipment.
  - Check frequently under swings and at slide exits where materials get displaced more often
  - Use borders to minimize spillage.
  - Rake displaced materials back into place.
- Critical Height

Minimum compressed loose-fill surfacing depth

Inches Of (Loose-Fill Material) Protects to Fall Height (feet)

6	Shredded/recycled rubber	10
9	Sand	4
9	Pea Gravel	5
9	Wood mulch (non-CCA)	7
9	Wood chips	10

Is this enough surfacing?

Is this enough surfacing?

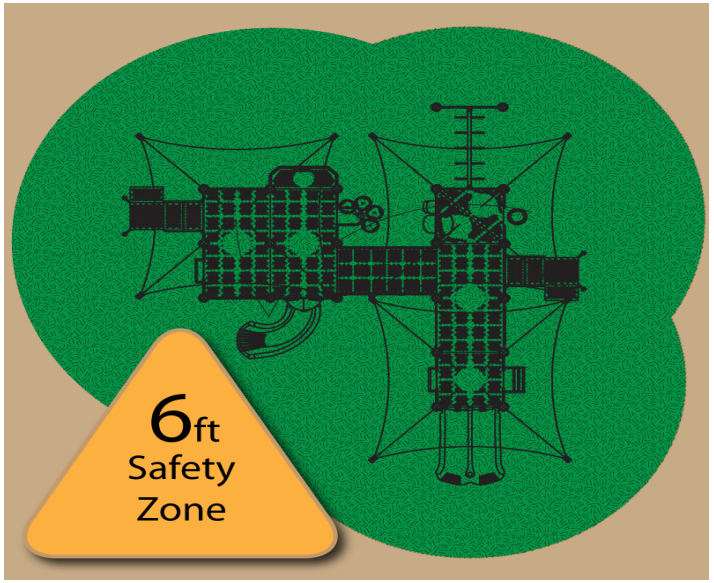
Is this enough surfacing?

How about this?

Is this surfacing deep enough?

Use Zone

- Area in which a child might fall.
- Has protective surfacing
- Extends a minimum of six feet in all directions
- Swings have a much larger use zone



Equipment Spacing

- Improper spacing between pieces of equipment can result in a child falling off one structure and striking another.
- Improper spacing can result in overcrowding
- Proper spacing allows for good circulation
- Make sure play structures more than 30 inches high are spaced at least 9 feet apart
- Swings located near the boundary of the playground

Structurally Sound?

Torn/worn plastic coating exposes raw metals to advance deterioration

Connectors are the weak link in performance

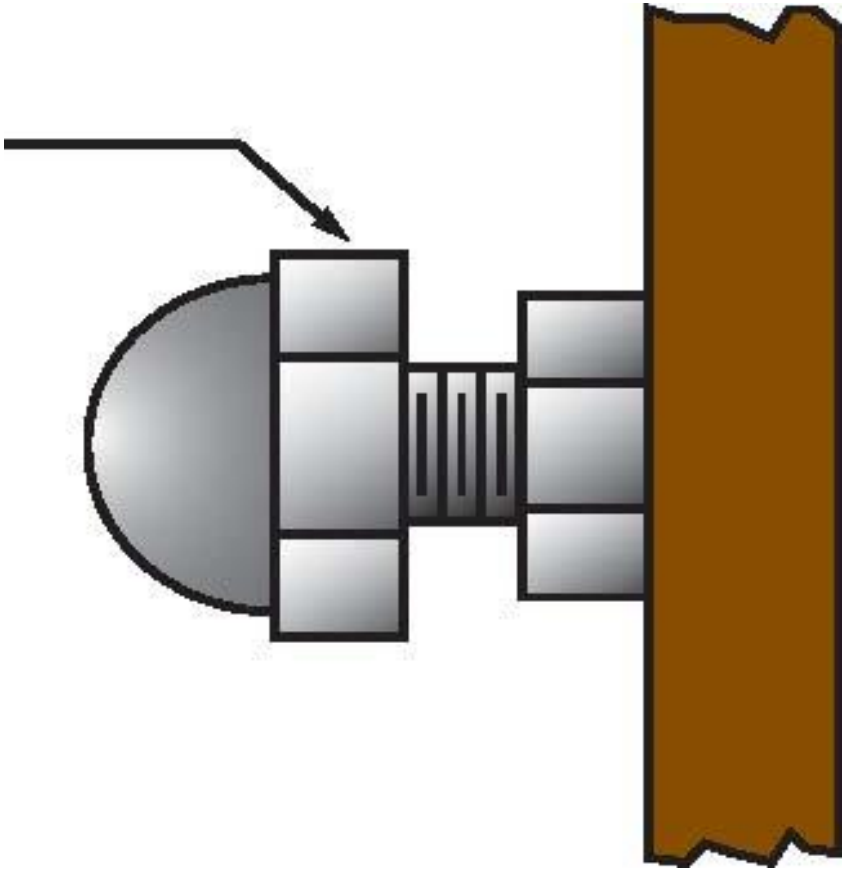
Missing Hardware = Big Problem

More Missing Hardware

Watch for Wear and Tear

Check for Open Hooks and Bad Bushings

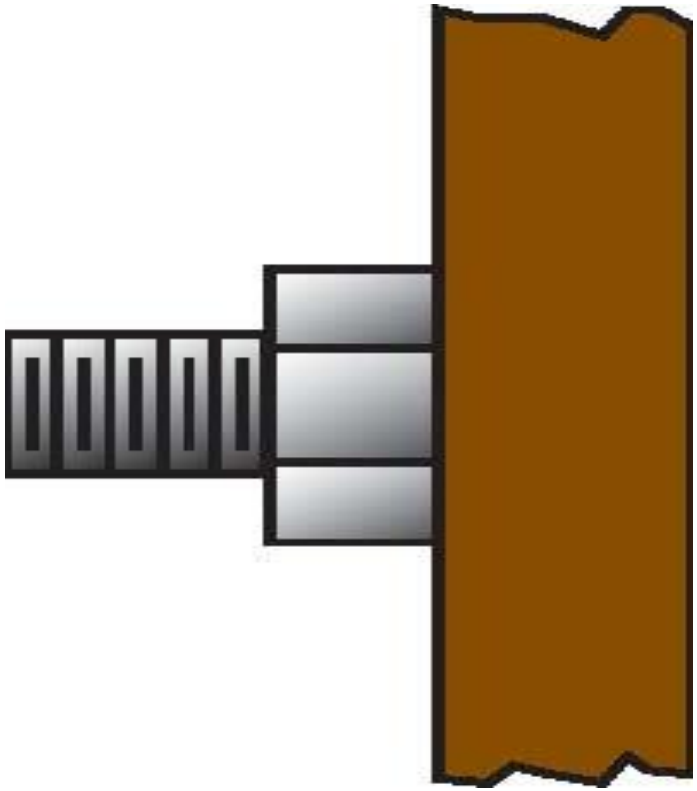
Protrusions and Projections



Example of a hazardous protrusion that increases in diameter from plane of initial surface and forms an entanglement hazard and may also be an impalement hazard.

Diagram from CPSC Handbook

Protrusions and Projections



Example of a hazardous projection that extends more than 2 threads beyond the nut and forms an impalement/laceration hazard and may also be an entanglement hazard.

Diagram from CPSC Handbook

Projection Hazards

- Entanglements may lead to Strangulation

Projection Hazards

Strangle

Impale

Projection Hazards

Projection Hazards

Look for Sharp Points, Corners & Edges

Eliminate Pinch, Crush & Shear Points

Entrapment Hazards

Spaces that allow the body to pass through but not the head
>3.5 inches and < 9”

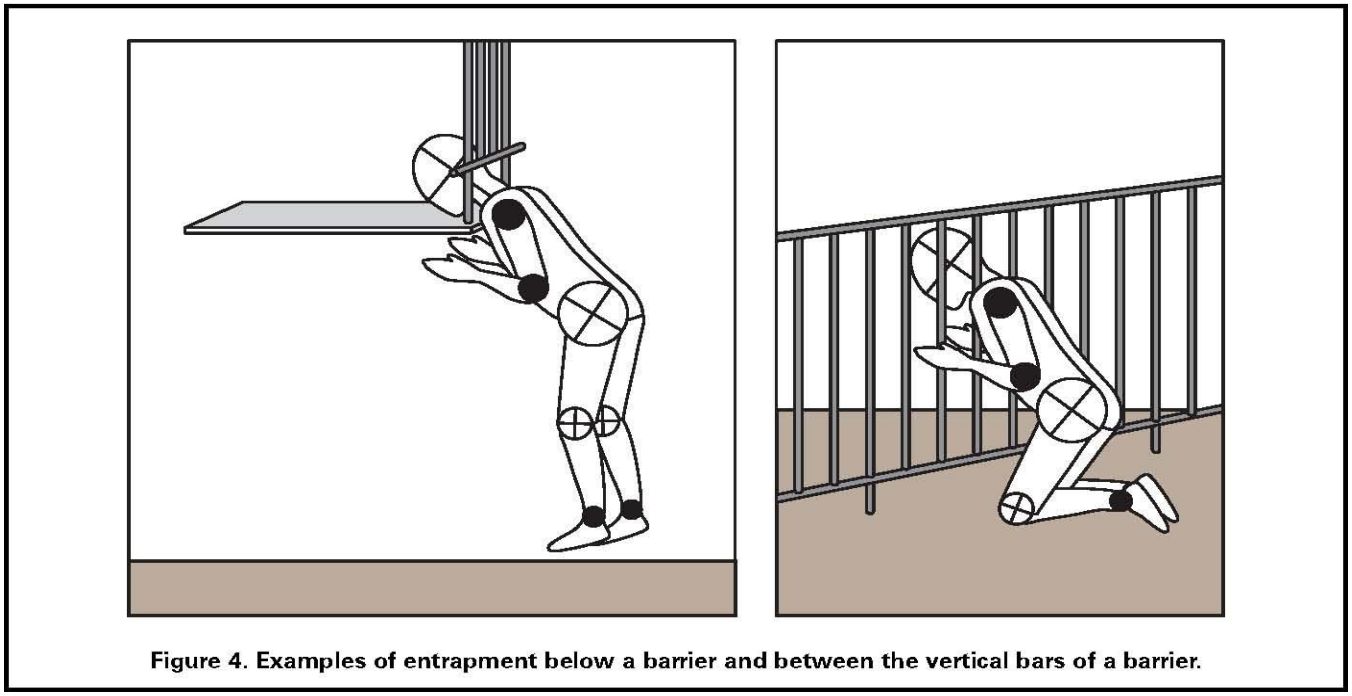


Figure 4. Examples of entrapment below a barrier and between the vertical bars of a barrier.

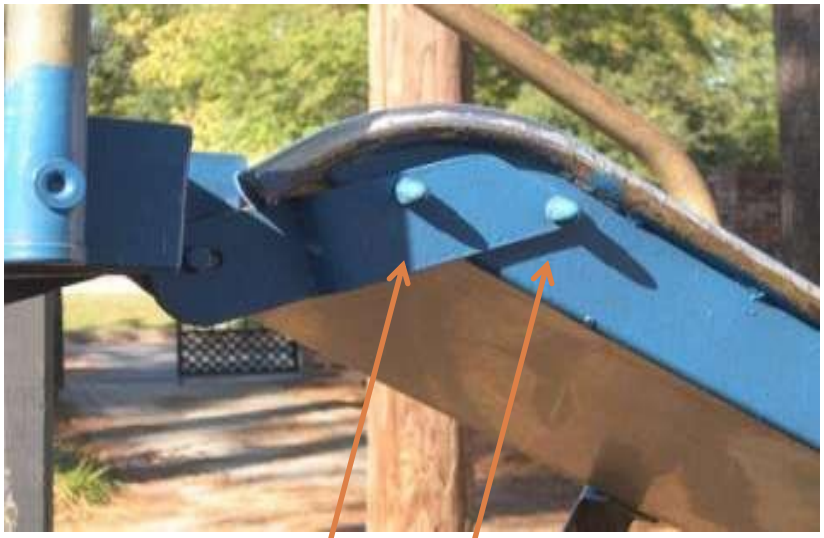
Diagram from CPSC Handbook

Eliminate Entrapment Hazards

Eliminate Entanglement Hazards

Watch for around elevated equipment

Entanglement Hazards



Leading cause of fatalities

Reduce Tripping Hazards

Reduce Impact Hazards

CPSC recall- 1995

Eliminate Suspended Hazards

Prevent Falls from Equipment

Guardrails

Barriers

Where is the Fall Hazard?

Where is the Fall Hazard?

Recycled Tires

- Care should be taken to ensure that:
  - no steel belts/wires are exposed if steel-belted radials are used.
  - no water or debris collects inside the tire.

Duty: Warn Users –Signs and Labels

- Age appropriateness (intended user group)

  Ages 0-2; 2-5; 5-12

- Supervision recommended
- Warning message(s)-
  - Hot play surfaces
  - Drawstrings, bicycle helmets
  - Play equipment over hard surfaces

Duty: Warn Users

Duty: Supervise

- Carefully supervise children on the playground
- Estimated 40% of playground injuries directly related to lack of supervision
- Have playground rules and communicate them to the children.
- Playground designed with clear sight lines
- Emergency plans

Other Considerations

- Site Selection
  - Consider vehicular traffic
  - Lakes, ponds, streams
  - Drainage
  - Site lines
  - Sun exposure/shading

Solution to hot metal hazard?

Your Focus and Summary

- Accept Responsibility
- Conform with CPSC and ASTM guidance
- Identify Preventative Maintenance Activities
- Be Make Timely Repairs
- Document, Document, Document
- Understand the Importance of Data
- Inspect, Inspect, Inspect
- Supervise
- Train