

2.1 Staff Supervision

Adult supervision required during school operations

- Supervisors should understand basic playground safety issues
  - Equipment designed for age appropriateness
    - 2yrs to 5yrs
    - 5yrs to 12yrs



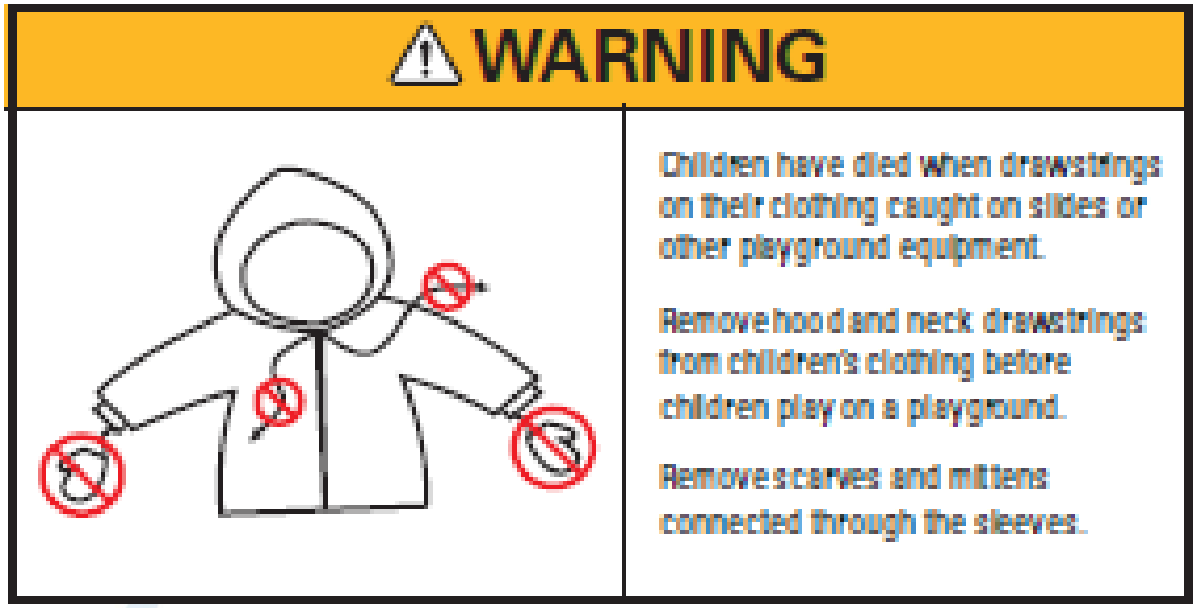
2.2 All Playground Equipment In Good Repair

- To minimize the potential for injuries, all playground equipment should be kept in good repair.
- Free of projections that could be:
  - Protrusion hazards
  - Entanglement hazards



2.3 Projections & Entanglement

- Should not be capable of entangling children's clothing, could cause death by strangulation.
- Special attention to avoid "Projections & Protrusions" on slides to minimize risk of entanglement w/ clothing.



Projections & Protrusions

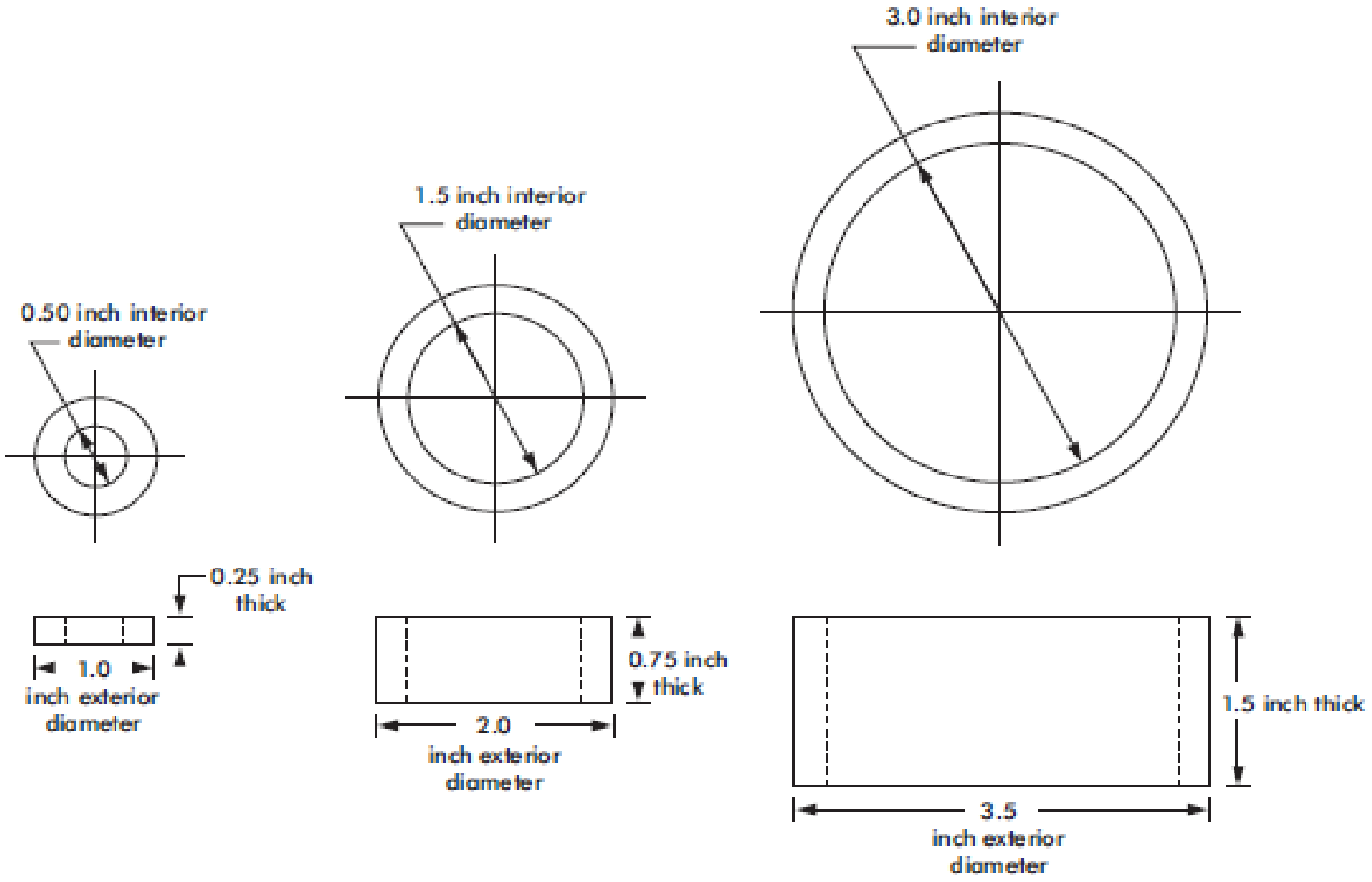


Figure B1. Projection test gauges



2.3 Projections & Protrusions

Test Procedures

- Successively place each gauge over any protrusion or projection and determine if it projects beyond the face of

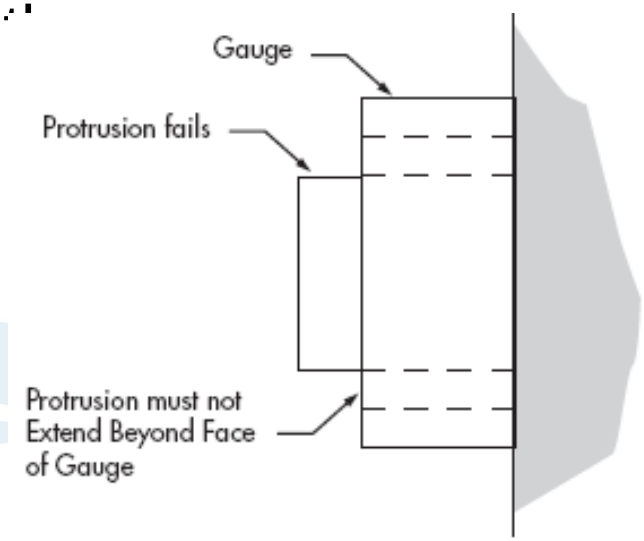
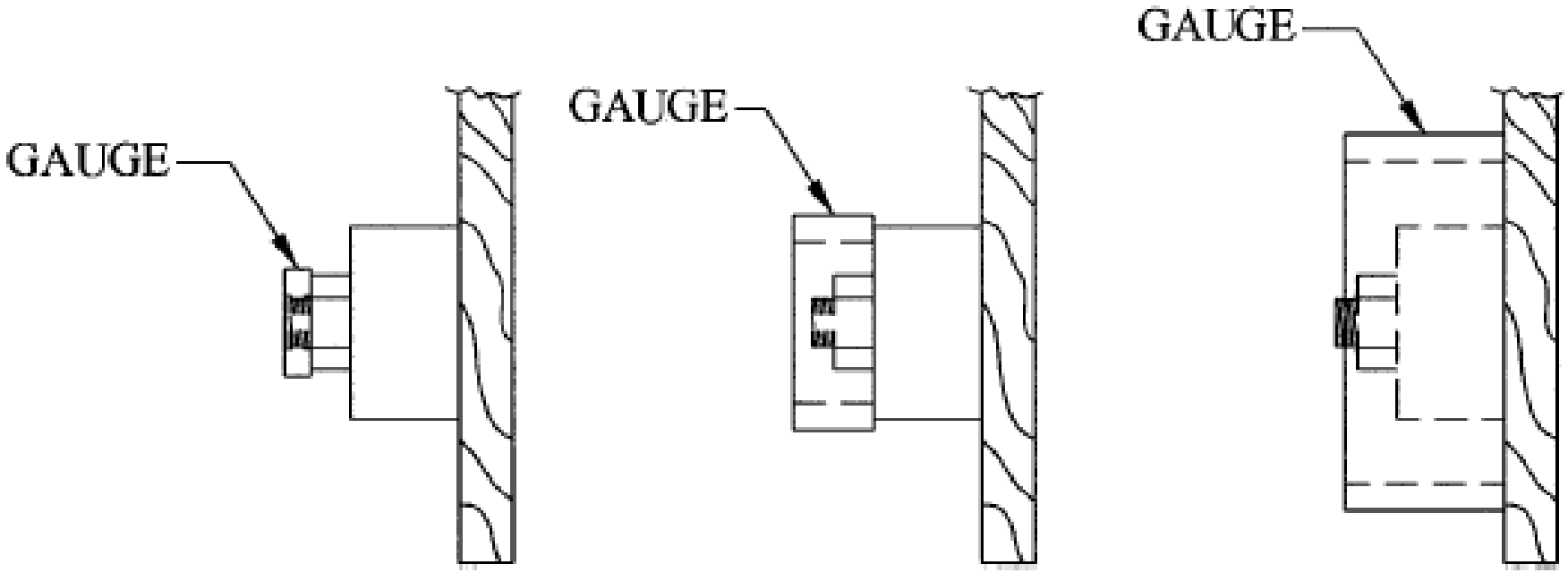


Figure 6. Protrusion Test

2.3 Projections & Protrusions

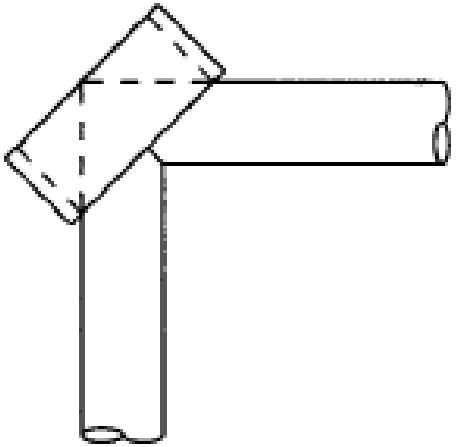


NOTE—For compound protrusions, successively place gauges over increasing diameters to determine compliance.

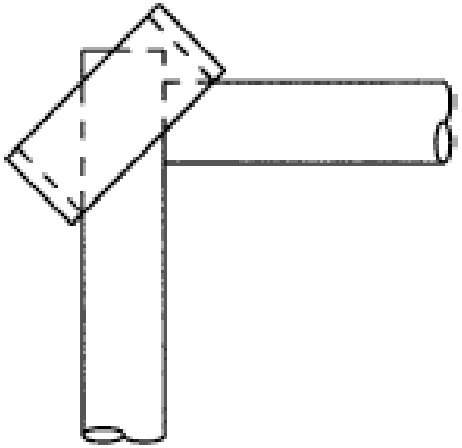
FIG. A1.12 Compound Projection Test

Reference Paragraph 6.3.2

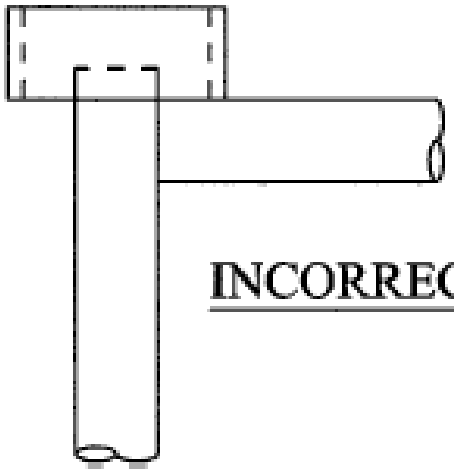
CORRECT USE



PASS
No projection beyond face of gauge



FAIL
Projection beyond face of gauge



INCORRECT USE

FIG. A1.13 Use of Projection Gauges
Reference Paragraph 6.3.2


Any bolt with more than 2 threads present is an automatic Entanglement Hazard.

OHIO SCHOOL PLAN



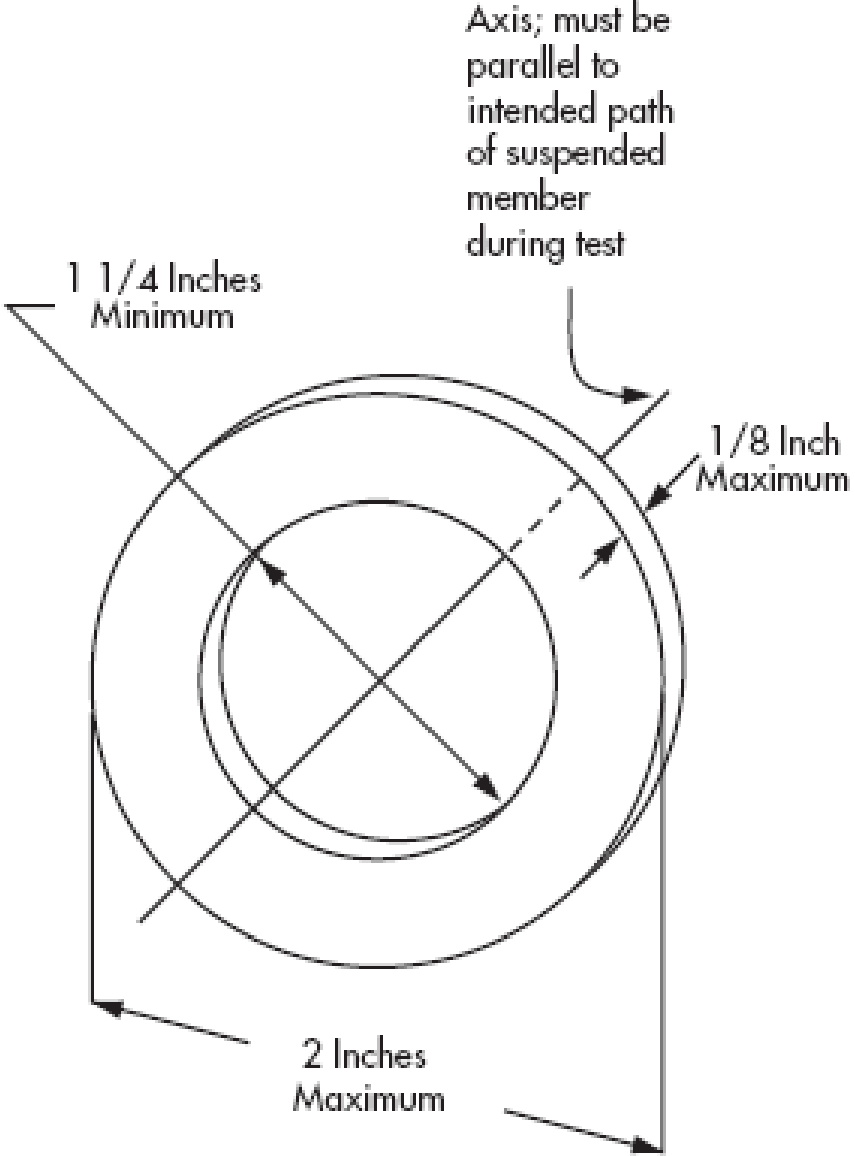





2.3 Projections & Entanglement

A projection is not an entanglement hazard unless 4 conditions are present…

1. *Projection must fit within a projection gauge.*
2. *Projection must be above the horizontal plane.*
3. *Projection must have perpendicular sides*
4. *Projection must extend > 0.12” from initial surface*



Note: gauge made of any rigid material

Figure 7. Protrusion Test Gauge for Suspended Swing Assemblies

1. ≥ 0.12in. (3.0mm)

≤ 0.12in. (3.0mm)

PASS

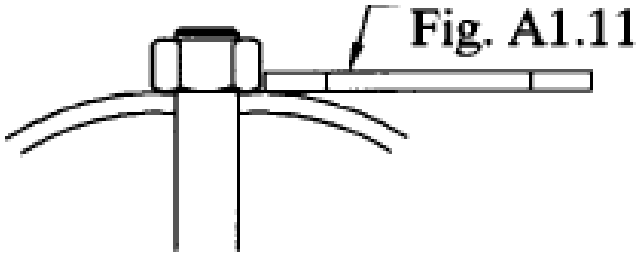
Fits within one of the (3) projection gauges. Projects upwards from a horizontal plane - perpendicular projection is ≤0.12in (3.0mm), curved upper surface does not project perpendicular to the plane of the initial surface.

2. ≤ 0.12in. (3.0mm)

PASS

Fits within one of the (3) projection gauges. Each of three surfaces project upwards from a hoirizontal plane ≤0.12in (3.0mm) - O.K. Rivet head has the same characteristics as in 1, therefore it passes the entanglement test for projections from a horizontal plane.

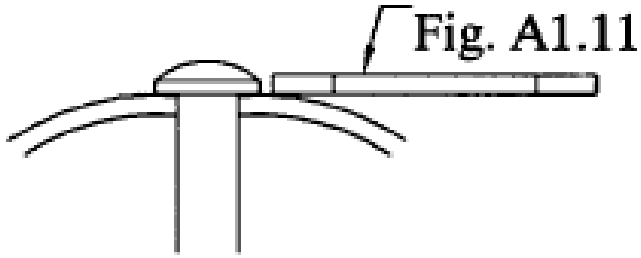
3. Fig. A1.11



FAIL

Fits within one of the (3) projection gauges. Passes bolt end projection test - ≤ 2 threads exposed. Fails entanglement test - projection upwards from a horizontal plane perpendicular to plane of initial surface > 0.12in (3.0mm).

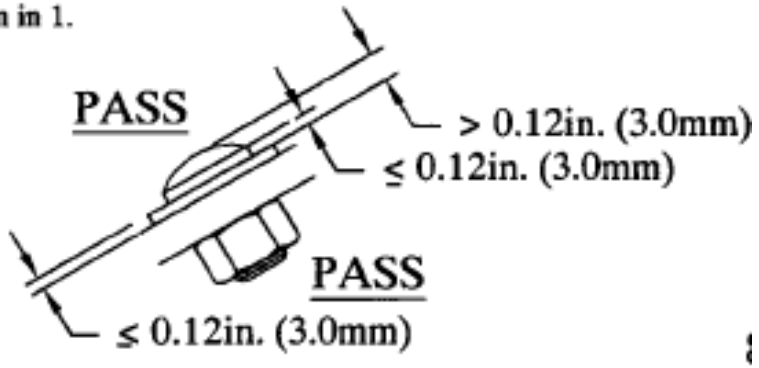
4. Fig. A1.11



PASS

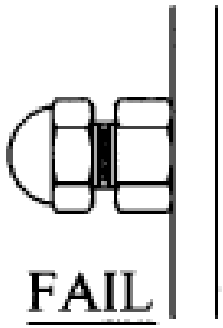
Fits within one of the (3) projection gauges. Passes entanglement test - projection from a horizontal plane - for same reasons shown in 1.

5. Fits within one of the (3) projection gauges. Projects upwards above a horizontal plane - passes for same reasons as shown in 1.



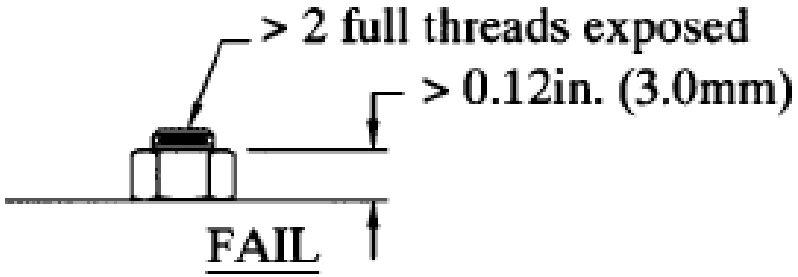
Passes bolt end projection test - ≤ 2 threads exposed. Projects downward below horizontal plane - not subject to entanglement requirement of projecting above a horizontal plane.

7.



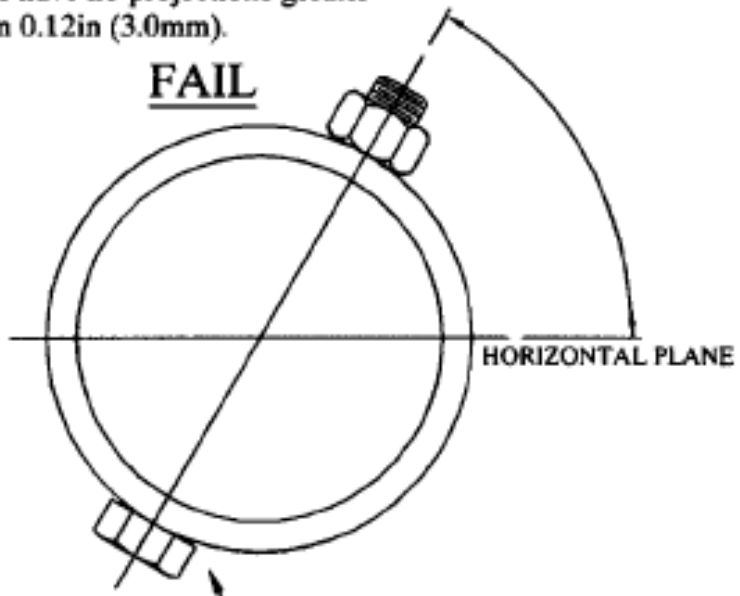
Fails entanglement test - projection fits within one of the three gauges and increases in size from initial surface to outer end.

6.



Fits within one of the (3) projection gauges. Fails (2) entanglement tests - Projects upwards from a horizontal plane perpendicular to plane of initial surface > 0.12in (3.0mm) and fails exposed bolt end projection > 2 full threads.

8. Projections above a horizontal plane must pass the three gauge test plus have no projections greater than 0.12in (3.0mm).



Projections below the horizontal plane must meet the three projection test gauges only.



2.4 Records of Inspections

- Inspection records should be readily available
- Inspection records should include the following:
  - Name of playground & location
  - Inventory of what is included in a playground
    - Swings, teeter totter, slide
  - Outline of hazards/exposures for each
  - Any hazards found
  - Date of inspection
  - Date(s) of repairs made
  - Name of inspector
- Accident history



2.5 “S” Hooks

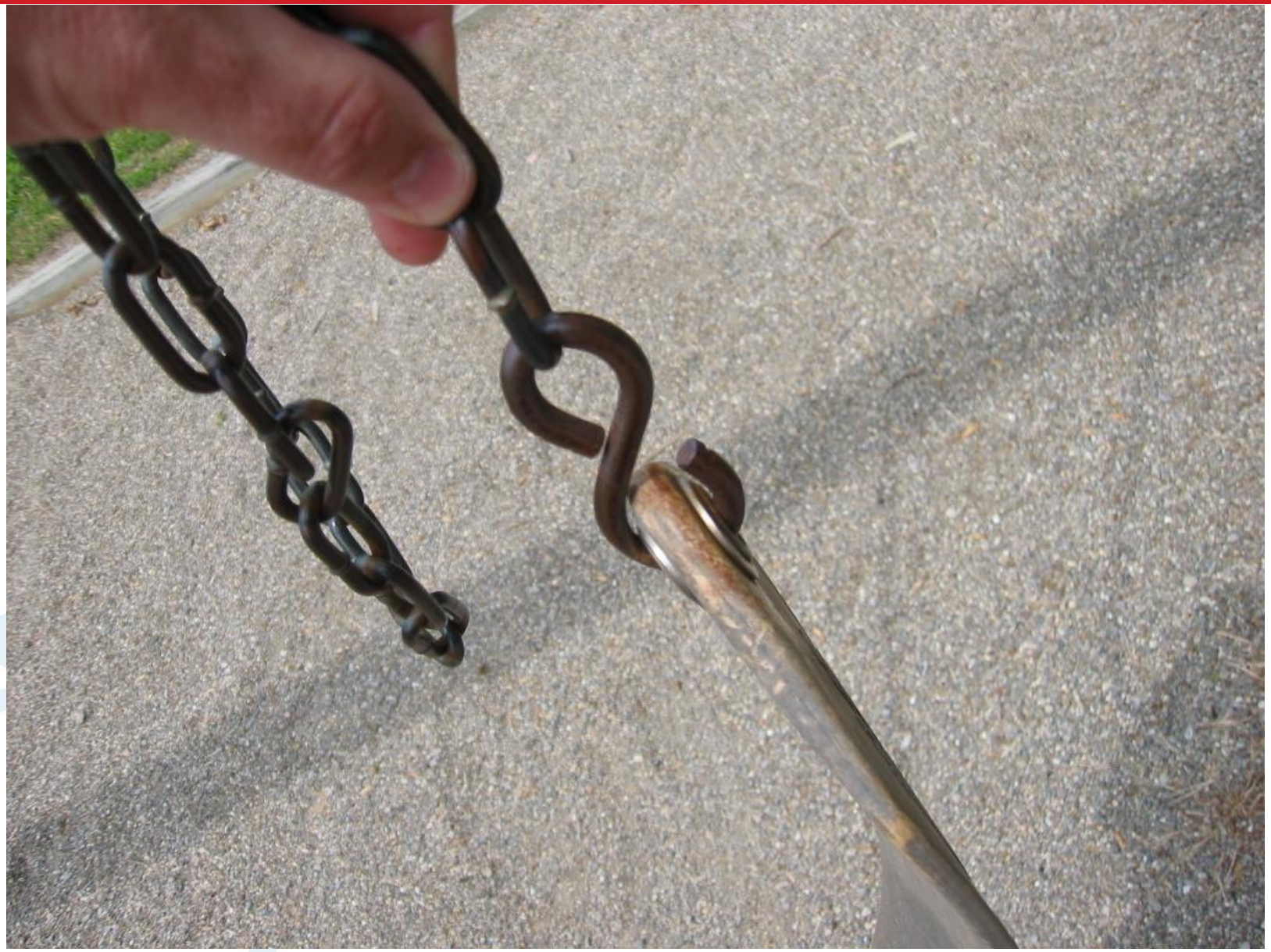
- Crimp to .04” gap on auto feeler gauge OR less than thickness of a dime
- Never “re-use” an old “S” hook
- No overlaps
- No extentions beyond other loop

4. Both loops closed. Lower loop projection O.K.
Upper loop O.K.
Checking lower loop alignment

FAIL
Lower loop overlaps body

PASS
Lower loop aligns with body

FIG. A1.19 Requirements for Fastening Devices
Reference Paragraphs 6.4.5 and 6.4.5.1





2.6 Swings Not Recommended for Public Playgrounds



2.7 Head Entrapment

- A component or a group of components should not form openings that could trap a child's head.
- Feet first or head first entry.
- Completely bounded openings

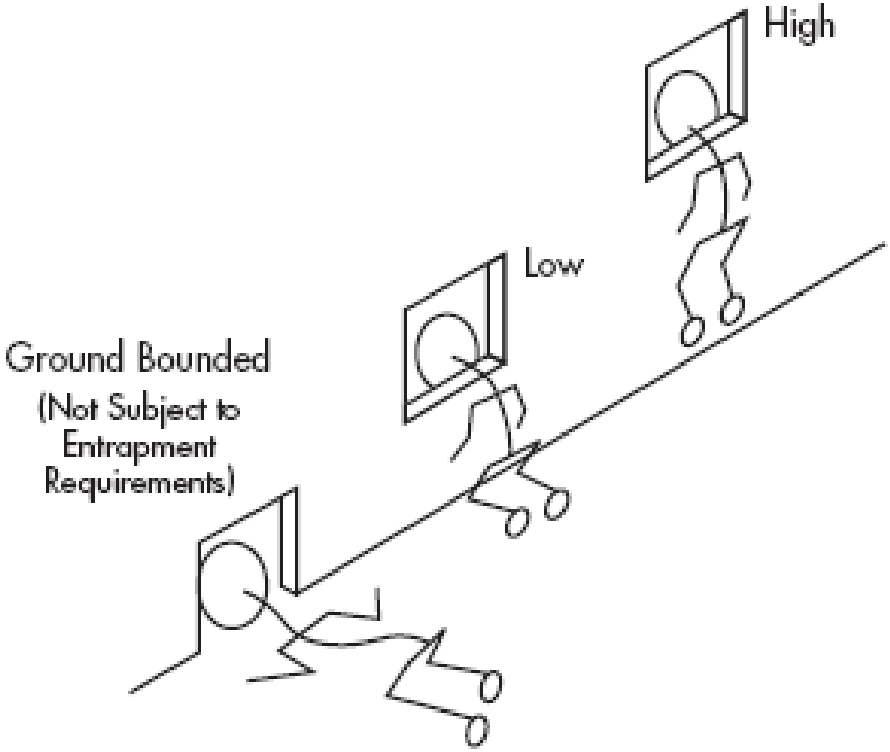


Figure B-1. Examples of Completely Bounded Openings



Head & Torso Entrapment

- Openings greater than **3.5 inches** or less than **9 inches**

- TEST FIXTURES — Two templates are required to determine if completely bounded openings in rigid structures present an entrapment hazard.



Head & Torso Entrapment

Small Torso Template

- Based on the size of the torso of the smallest user at risk, (5th percentile 2-yearold child).



Head & Torso Entrapment

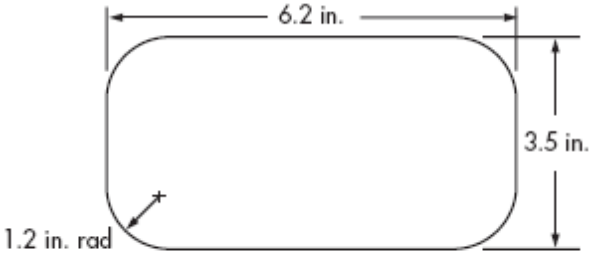
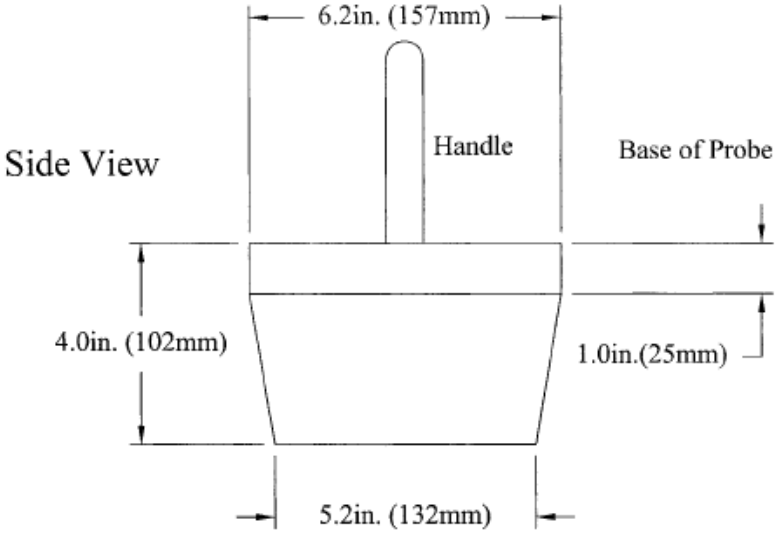
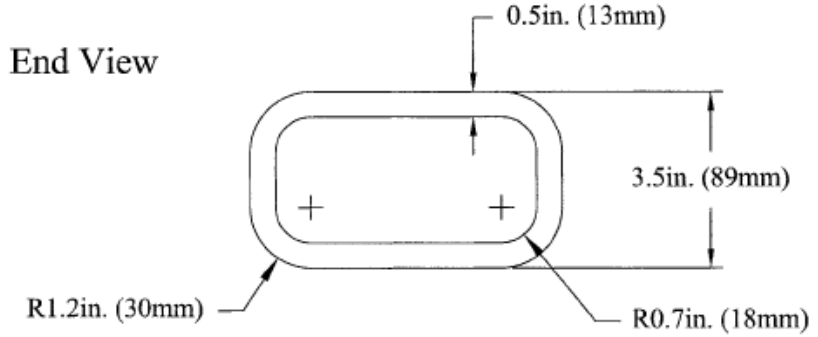


Figure B-3. Small Torso Template





Material: Any Rigid Material

FIG. A1.2 Torso Probe

Reference Paragraphs 6.1.1, 6.1.1.1, and 6.1.2



Head & Torso Entrapment

Large Head Template

- Based on the largest dimension on the head of the largest child at risk (95th percentile 5-year-old child).

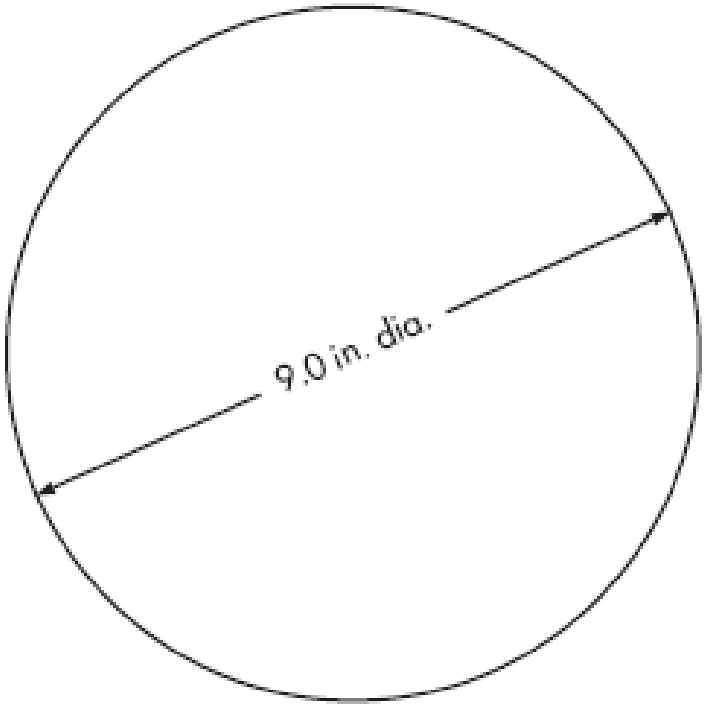
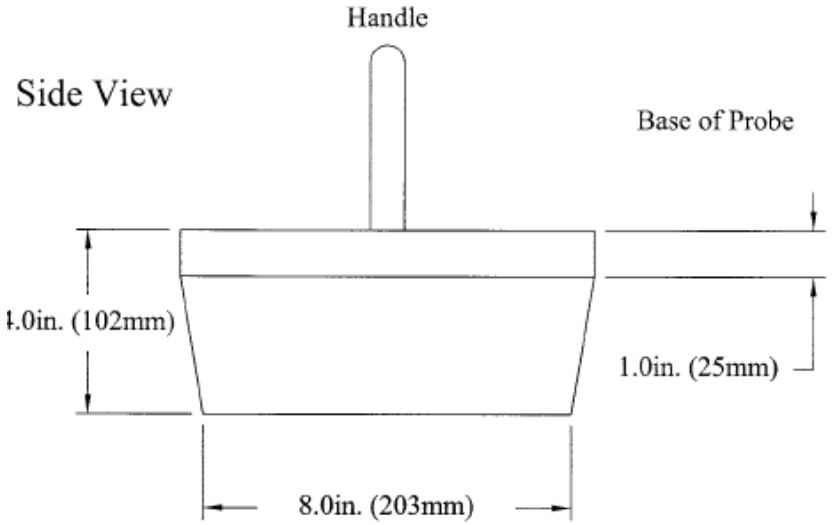
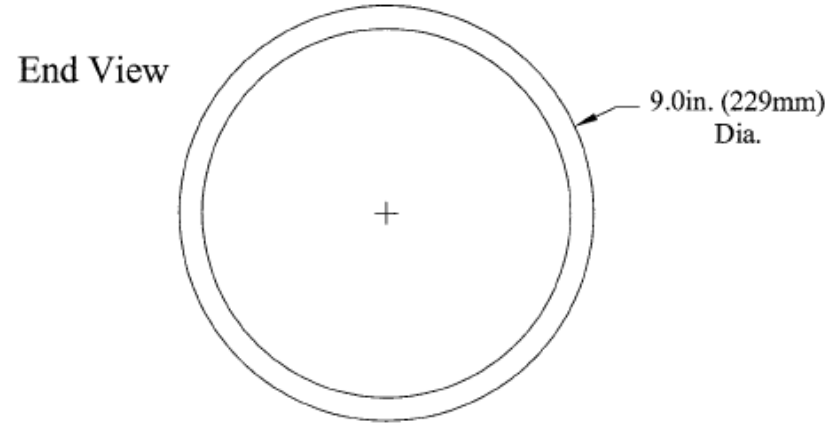


Figure B-4. Large Head Template





Material: Any Rigid Material

FIG. A1.3 Head Probe
Reference Paragraphs 6.1.1.1 and 6.1.2



Head & Torso Entrapment

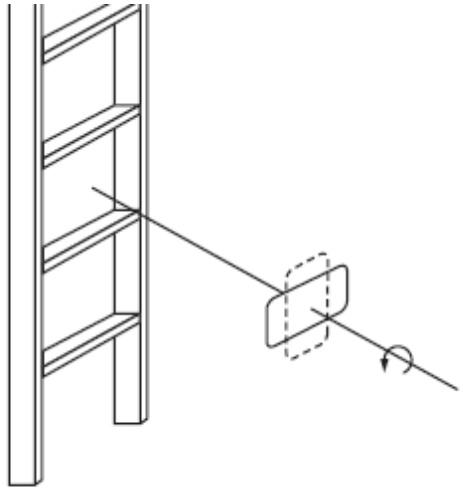
- When tested in accordance with the procedure in B4. below, an opening meets the recommendation if:
  - (1) the opening does not admit the Small Torso Template,

    or
  - (2) the opening admits the Small Torso Template and also admits the Large Head Template.

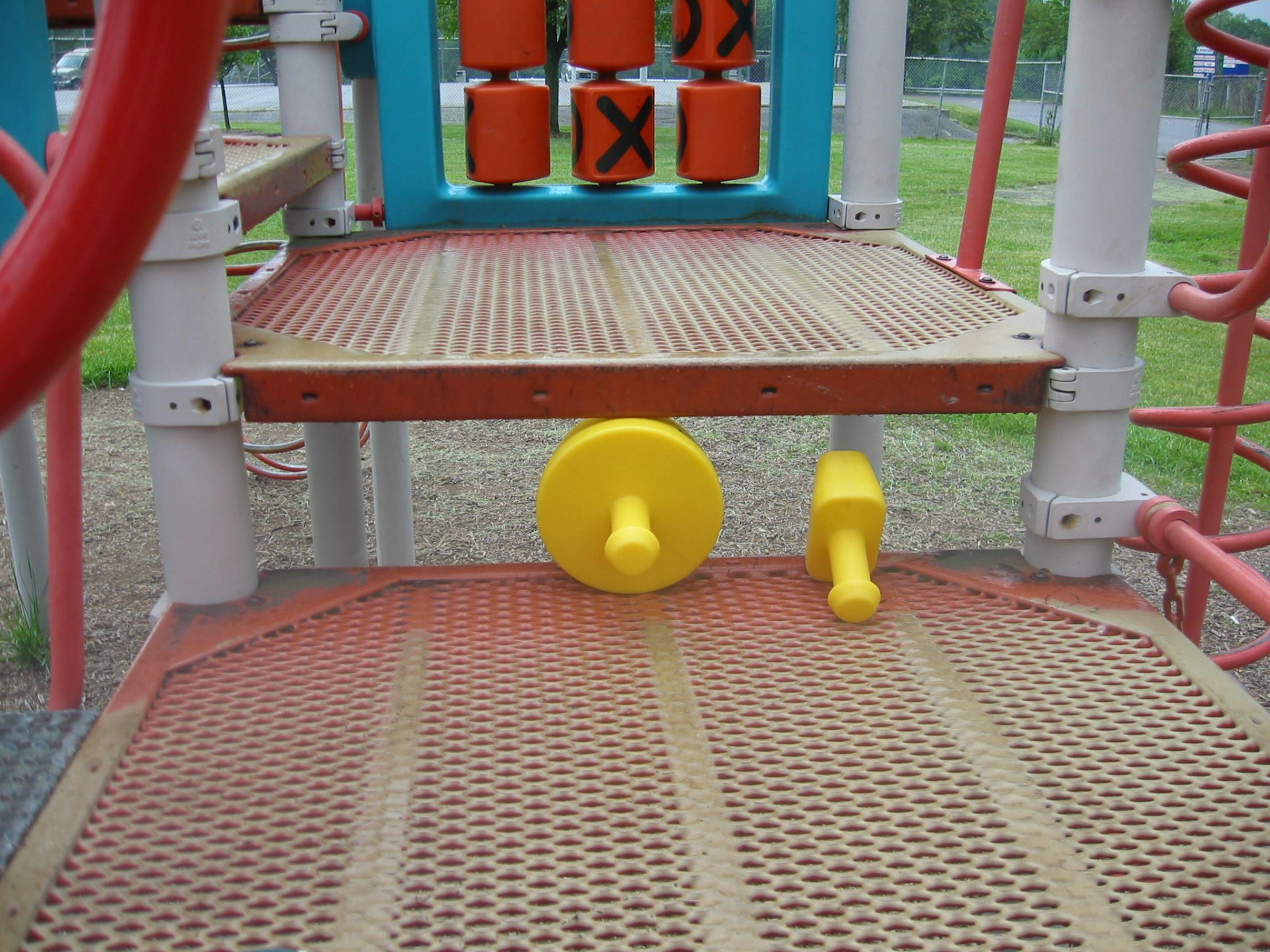
- An opening fails to meet the test if it admits the Small Torso Template but does not admit the Large Head Template.



Head & Torso Entrapment



Test procedures and performance criteria for completely-bounded openings.





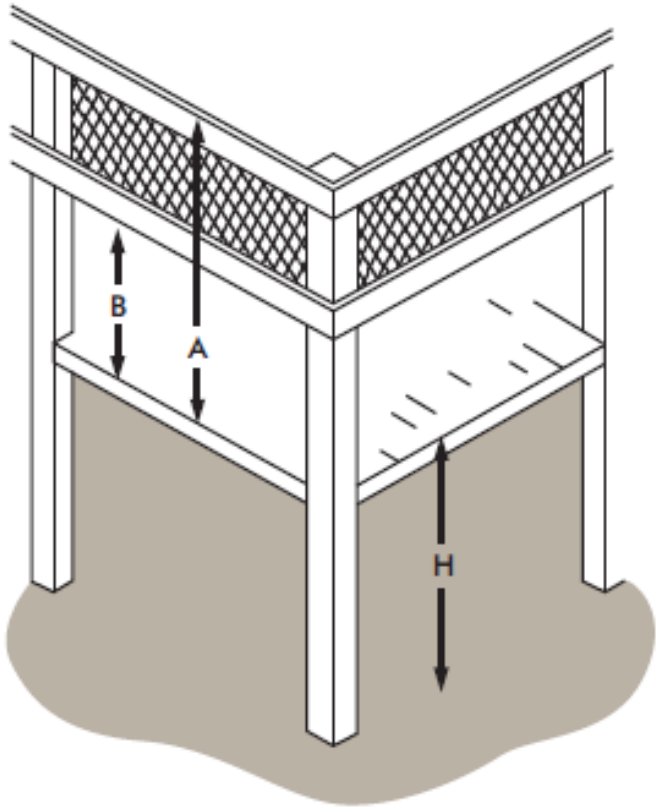
Head & Torso Entrapment

Completely Bounded Openings VS. Non-Rigid Openings

Test procedures are the same ***BUT*** 1 exception:

- Non-Rigid Openings – you must apply 50lbs. of pressure

2.8 Guardrails



Guardrails

2-5yrs

Platform Height (H):

0” – 20” No protection required

>20” – 30” Guardrail required (H)

Min. 29” top rail (A)

Max. 23” bottom rail (B)

5-12yrs

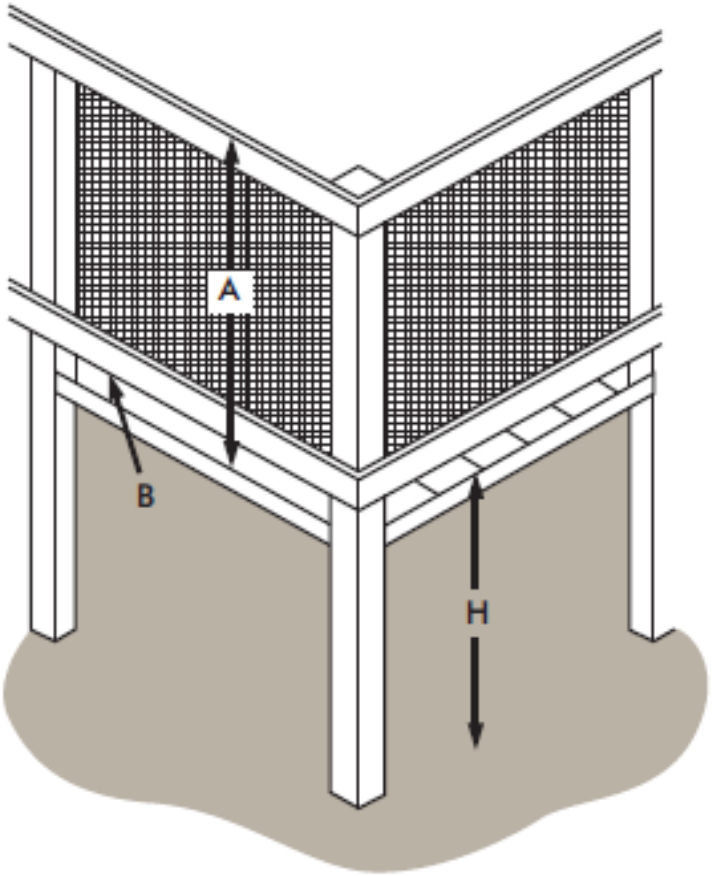
0” – 30” No protection required

>30” – 48” Guardrail required

Min. 38” top rail (A)

Max. 28” bottom rail (B)

2.8 Barriers



Barriers

2-5yrs

Platform Height (H):

>30” Barrier required (H)

Min. 29” top rail (A)

Max. < 3.5” Torso Probe (B)

5-12yrs

>48” Barrier required

Min. 38” top rail (A)

Max. < 3.5” Torso Probe (B)



2.8 Platforms

Unless there is another means of access to an elevated platform, the maximum height between platforms without a means of access is:

- Toddlers 7”
- Preschool 12” (2-5yrs)
- School-age 18” (5-12yrs)



2.9 Protective Surfacing

- Protective surfacing
  - Shock absorbing (i.e., impact attenuating) surfacing material in the use zone that conforms to the recommendations in Section §2.4 of the CPSC handbook.
- F1292 – Standard for Impact Attenuation of Surfacing
  - The ability to absorb the impact of a child's head from a fall without sustaining serious or fatal injury.
  - "Designated play surface"
    - Any elevated play surface for sitting, walking, standing, climbing
    - Area at least 2" X 2", within 30 degree angle from horizontal



2.9 Protective Surfacing

- Critical Height
  - The fall height below which a life-threatening head injury would not be expected to occur.
    - Should not exceed 200G's
    - Should not exceed 1,000 HIC
      - » ASTM F1292 test results
  - Measured in full "feet" heights
  - Critical height must ***meet or exceed*** the fall height of the equipment.



2.9 Protective Surfacing

Table 2. Minimum compressed loose-fill surfacing depths

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

* Shredded/recycled rubber loose-fill surfacing does not compress in the same manner as other loose-fill materials. However, care should be taken to maintain a constant depth as displacement may still occur.



2.11 Use Zones

- The surface under and around a piece of equipment onto which a child falling from or exiting from the equipment would be expected to land. These areas are also designated for unrestricted circulation around the equipment.

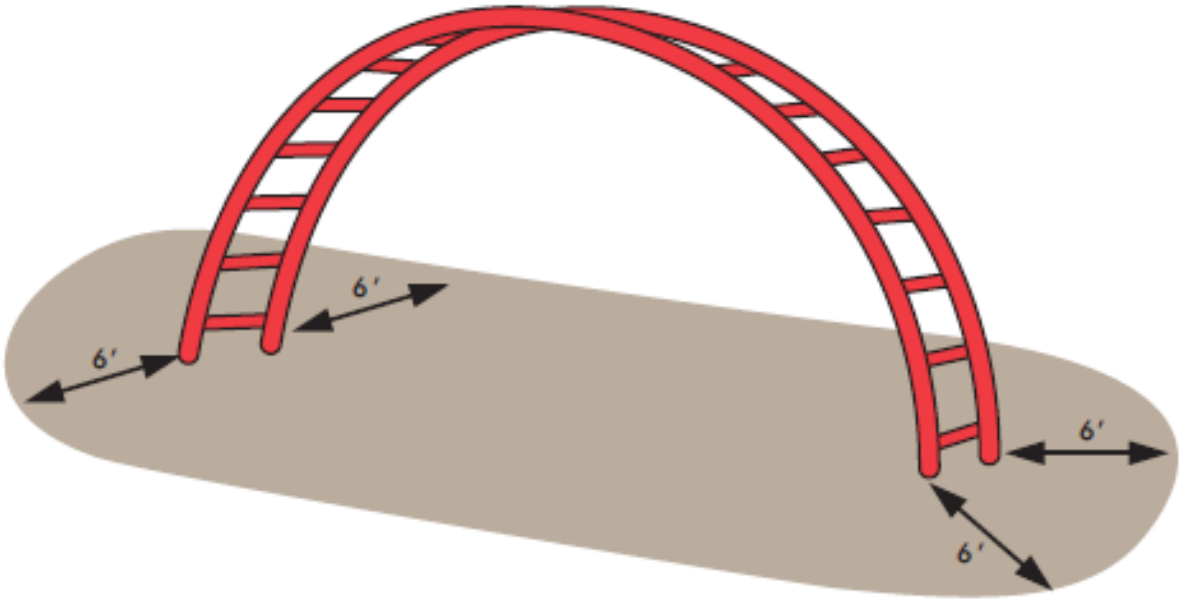


Figure 8. Use zone surrounding a freestanding arch climber

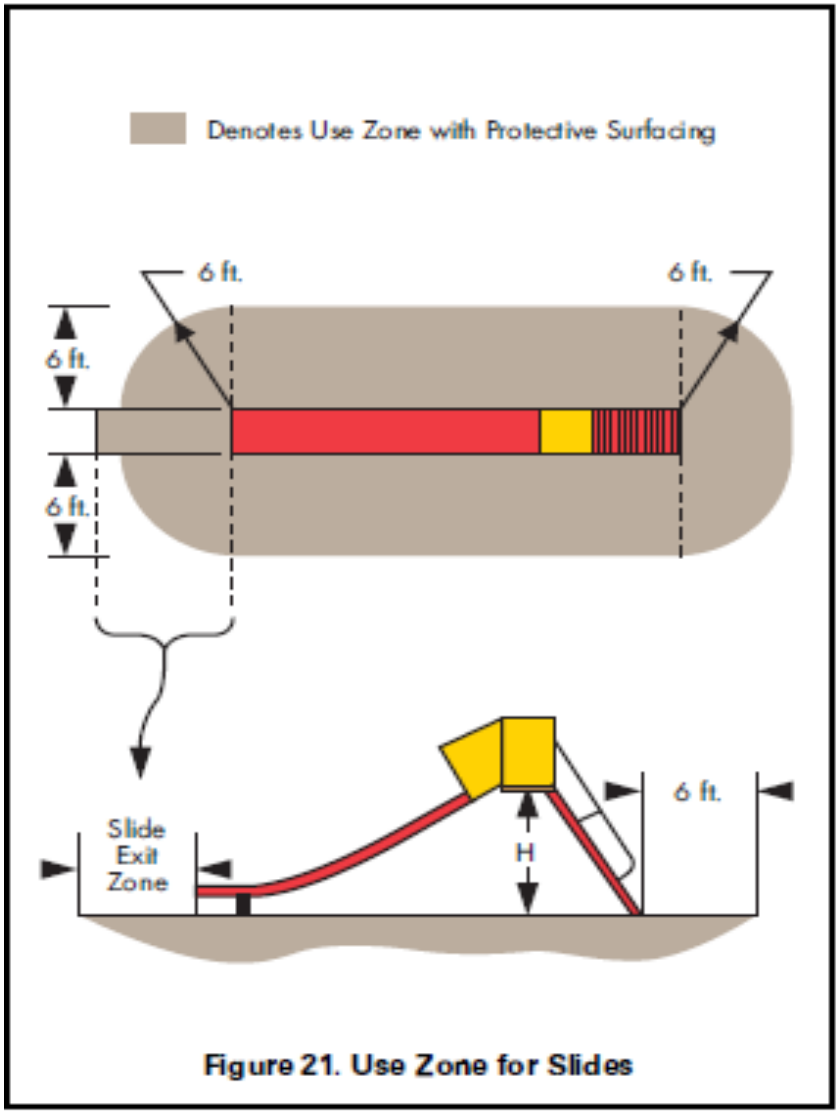


Figure 21. Use Zone for Slides

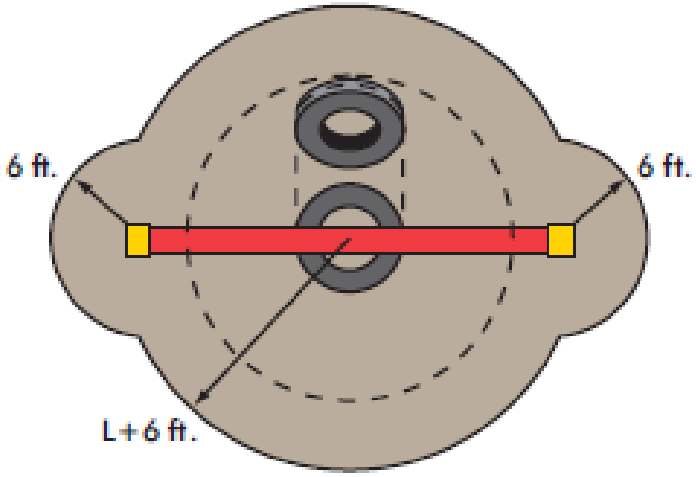


Figure 27. Use Zone for Multi-Axis Swings

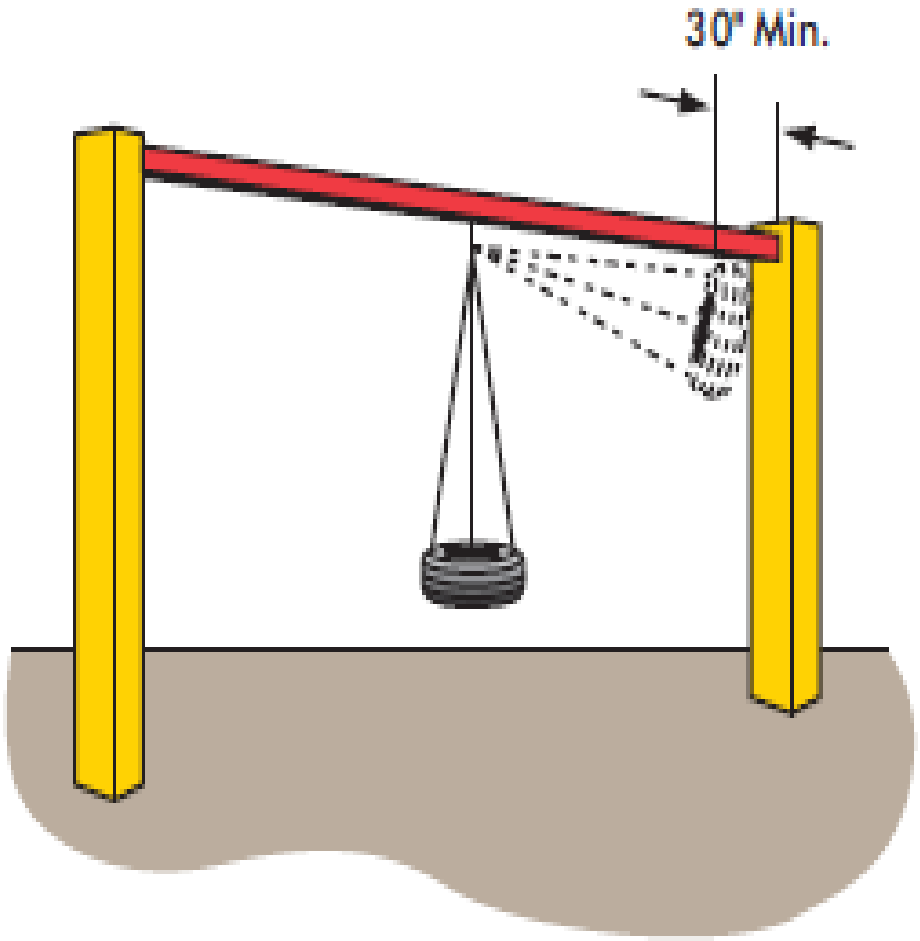


Figure 26. Multi-Axis Swing Clearance



Swing Clearance

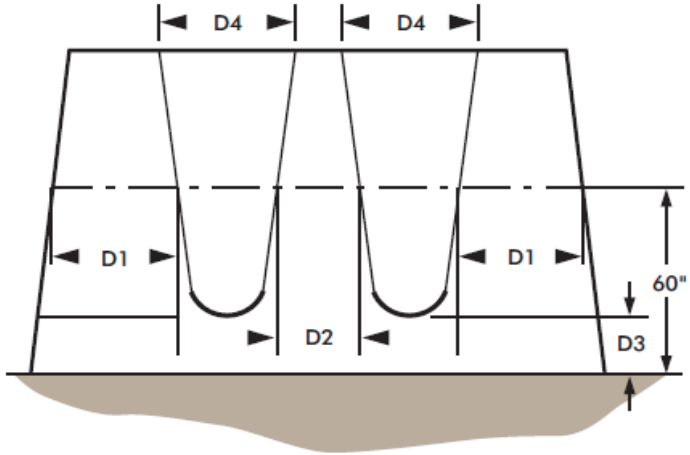


Figure 23. Minimum Clearances for Single-Axis Swings

Table 7. Minimum clearance dimensions for swings

Reason	Dimension	Toddler Full bucket	Preschool-age Belt	School-age Belt
Minimizes collisions between a swing and the supporting structure	D1	20 inches	30 inches	30 inches
Minimizes collisions between swings	D2	20 inches	24 inches	24 inches
Allows access	D3	24 inches	12 inches	12 inches
Reduces side-to-side motion	D4	20 inches	20 inches	20 inches



Thank You

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