

## **Comparison Table of CSA Z614 Standard Requirements**

\*\*This comparison table represents the authors' opinion on the significant changes between the 2007, 2003, 1998 and 1990 editions of the CSA Z614 Standard\*\*

\*\*\*There are other changes between editions of the CSA Z614 Standard that are not noted in this comparison table\*\*\*

2007	2003	1998	1990
Clause 1.5 – Further definition of scope of the Standard. A specific exemption from the standard has been given for landscape elements, plants and natural materials, and loose play elements (i.e. not attached).  These items may include small buckets or shovels found in a sandbox of a play facility. This would also exempt riding and rocking toys such as tricycles, wagons, grass play hills, plants, small logs, etc.  As per 2003 edition, other site furnishings not intended for play are also exempted. Specifically, fences, benches, and tables.	Clause 1.5 provides an exemption for benches, tables, fencing and other site furnishings.  No consideration was given for portable equipment or natural play elements (attached or unattached).	Clause 1.5 provides an exemption for benches, tables and other site furnishings.	No specific exemption for site furnishings provided.
Annex H – New accessibility annex to provide information for those designing, installing, maintaining, and inspecting an accessible playspace.	No information provided on accessible playspaces.  One reference document present in Clause 2 provided to Ontario Playability Toolkit by the Ontario Parks Association.	No information provided on accessible playspaces.	No information provided on accessible playspaces.



Clause 1.7 – A specific exemption from the Standard has been given for family day care (as well as previous exemptions listed from 2003 edition)  This exemption would typically apply to child care centres run out of a person's residence. Commercial child care facilities are still covered by the Z614 Standard.	Clause 1.7 exempts items such as:  1. Sports, fitness, gymnasium equipment  2. Slides that end in water  3. Soft contained play equipment  4. Backyard play equipment  5. Amusement rides	1998 edition corresponds to Clause 1.6 which exempts items such as: 1. Sports, fitness, gymnasium equipment 2. Swimming pools, slides that end in water, and whirlpools 3. Homemade or child constructed equipment 4. Soft contained play equipment with controlled public access 5. Play equipment intended for backyard use and amusement parks.	1990 edition corresponds to Clause 1.5 which exempts items such as:  1. Sports, fitness, gymnasium equipment 2. Swimming pools and slides that end in water 3. Homemade or child- constructed equipment 4. Backyard equipment 5. Amusement rides
Clause 1.8 – Both metric and imperial measurements are shown throughout the Standard. The metric measurements represent the Standard. The imperial measurements are provided for information only and are rounded to 2 decimal places.  If there is a discrepancy between the metric and imperial measurements it is the metric measurement that is to be used.	2003 edition of CSA Z614 contains only metric measurements (i.e. no imperial measurement provided).  The elimination of imperial measurements was largely due to the 1998 edition containing both metric and imperial, but having a small discrepancy between the metric and imperial measurements.  Lack of imperial measurements within the CSA Z614-2003 Standard was not well received by users of the document.	1998 edition of CSA Z614 contains both metric and imperial measurements. There is a disparity between the two measurements. For example, 1800mm has (72 in) in parenthesis afterwards. 1800mm hard converts to approx. 70 7/8 inch not 72 inches as indicated.  This discrepancy has caused problems for field personnel.	1990 edition of CSA Z614 contains both metric and imperial measurements. There is a disparity between the two measurements. For example, 1800mm has (72 in) in parenthesis afterwards. 1800mm hard converts to approx. 70 7/8 inch not 72 inches as indicated.



6.2 & 12.1.1 – 0.5% tolerance on probes and gauges from Clause 12, 2.0% tolerance on all other measurements.	2003 edition contains 2% tolerance on all measurements within the standard.	1998 edition contains no tolerance on measurements.	1990 edition contains no tolerance on measurements.
Clause 6.2 provides a 2% tolerance (same as 2003 edition) is to apply to all measurements provided in the standard unless another tolerance is provided specific to one section or clause.			
Clause 12.1.1 – provides a 0.5% tolerance to all measuring probes, gauges and templates (2% tolerance applies everywhere else).			
Because the measuring probes, gauges and templates of Clause 12 represent life-threatening and debilitating injuries the tolerance on this section of the Standard is tighter.			
Clause 10.3.3 – grass and earth soils are no longer prohibited from use as playground surfacing.	Grass and earth soils are specifically prohibited from use as playground surfacing under Clause 10.3	Grass and earth soils are specifically prohibited from use as playground surfacing under Clause 10.3.	Play equipment with a fall height of 450mm (approx. 18 in) and lower is exempt from the protective surfacing requirements.
Having said this, "hard pan" is still not permitted as per Clause 10.4.5. So if grass or earth soils are used it will need to be used at lower fall heights. Maintenance of grass or earth soil surfaces will typically be			
higher than that of other surfacing types.  So although it is permitted, in many cases it cannot maintain a "pass" below the 200 GMAX, 1000 HIC threshold.			



Clause 10 (protective surfacing depth charts, Table D.1 & D.2) – new and more information provided regarding surfacing strengths and weakness (in Table D.1) and more information regarding depth and critical fall height (Table D.1 and summary found in Table D.2)	No surfacing depth chart provided in 2003 edition. Leaving owner/operators with no option other than to perform a surface impact test in accordance with ASTM F1292 or CEN Standard EN 1177.	Surfacing depth chart present in 1998 edition was originally produced by the Consumer Product Safety Commission (CPSC) in the U.S.  There is some disparity between the surfacing depth chart and the actual results achieved when performing a surfacing impact test in accordance with ASTM F1292.	No surfacing depth chart provided in 1990 edition. Just some text and tables listing the advantages, disadvantages, and maintenance considerations of different surfacing types.  If performing an impact test, the test method of ASTM F355 and ASTM F429 are to be followed.
Clause 10.4.6 – when performing an impact test the height to be used is the fall height from the version of CSA in place at the time of installation.  This change works in harmonization with fall height changes to Clause 15.16.  The intent of this clause is also so that field inspectors know to measure the fall height as per version of CSA Z614 in place at the time of installation, and NOT as per the 2007 edition of fall height. Otherwise, many surfaces may be condemned despite the fact that they comply with the fall height from installation date. In particular, synthetic products such as poured-in-place or tiles.	No information present. There is no need to identify "grand-fathering" of older fall heights as there was no change from 1998.	1998 fall height the same as 2003 edition.	No information present in 1990 edition.



Clause 11 – monthly versus annual inspections  2007 document clearly states that 12 detailed monthly inspections can be bound together with a summary page and are acceptable en lieu of completing a separate annual comprehensive inspection on top of monthly inspection requirements.	Ambiguous as to whether a monthly and annual inspection had to be separate inspection types, or could 12 detailed monthly inspections substitute for the annual comprehensive inspection.	Ambiguous as to whether a monthly and annual had to be separate inspection types, or could 12 detailed monthly inspections substitute for the annual comprehensive inspection.	Ambiguous as to whether a monthly and annual had to be separate inspection types, or could 12 detailed monthly inspections substitute for the annual comprehensive inspection.
Clause 13.2.2.1 (climbers) – Freestanding arched climbers are not recommended for children 18 months to 5 years old.  Please note that this only applies to freestanding arched climbers and it does not apply to arched climbers attached to a composite playstructure.	This clause not present in 2003 edition.	This clause not present in 1998 edition.	This clause not present in 1990 edition.



Clause 12 – Changes to metric measurements of probes, gauges, and templates from 2003 to 2007 CSA Z614 Standard. This occurred when adding the imperial measurements back into the standard that were absent from the 2003 edition.

Considering the rounding errors between metric and imperial measurements one of two numbers often results in a series of decimal places and does not work out evenly. In most cases the metric measurement is a whole number without decimals and it is the imperial measurement that has the decimals. In Clause 12 this situation is reversed. The rationale for many of these probes and gauges came out of the ASTM F1487 (i.e. the U.S. standard) and thus were in imperial measurements. The CSA Z614-2007 Standard has adopted the origin of the measurements due to their importance in providing a compliant playspace.

By adopting the imperial measurements with a metric conversion a great majority of the safety probe kits in existence are going to fit within the +/- 0.5% tolerance (as opposed to the reverse situation if the metric measurements were used).

Measurements found in Clause 12 are "soft" conversions from those provided in ASTM F1487 (U.S. playground standard where these measurements were extracted).

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Performance requirements dimensions from 1990 CSA Standard significantly different from 1999, 2003 and 2007 editions.

1990 edition had different tests or no test for many of the criteria now found in the current Clause 12.



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Clause 12.4.6.3 and Figure 17 – some debate since publication of 2003 edition as to whether or not the drawstring test device was to be lifted from the platform. The text of this clause remains the same, but the referenced figure 17 leaves no doubt that the drawstring test device is to be lifted from the platform.	2003 edition corresponds to Clause 12.3.6.3 – drawstring entanglement test of slide enclosure device (guardrail, protective barrier, hood, canopy, etc.).  No figure 17 present in this edition.  Disputes between field personnel have arose due to the word "HELD". Does held mean to hold in the vertical position on the platform, OR, does held mean to hold up and off the platform for the test?	1998 edition the same as 2003 edition.	No drawstring test present in 1990 edition.
Clause 13.1.4.1 – Handrails on stairways. Protective barriers or two handrails per side (4 handrails total) are required on stairways.  Lower handrails to be approx. 350mm to 550mm (14 – 22 in) and upper handrails to be approx. 725mm to 950mm (28 – 37 in).  A handrail designed as per above is compliant for users aged 18 months to 12 years.  Similar to 2003 requirement, all steps above 1.2m (approx. 47 in) require protective barrier panels.	Clause 13.4.1.1 – Handrails on stairways. Protective barriers or 2 handrails per side required at specific heights for different age groups.  At stair for 18 months to 5 year old required a lower handrail at approx. 350mm (14 in) and upper handrail at approx. 725mm (29 in).  At stair for 5 to 12 year olds required a lower handrail at approx. 550mm (22 in) and upper handrail at approx. 950mm (37 in).	1998 edition of CSA only required one handrail one each side of a stairway. The handrail had to be within a range of 550-950mm (approx. 22-38 in).	1990 edition of CSA required two handrails per side within approximate ranges. These ranges were similar (although not identical) to those required in the 2003 edition.  1990 did not have a height requirement where protective barrier panels were required on steps.



Clause 13.4.3.3 and 13.4.4.3 – Openings within guardrails and protective barriers – some debate since 2003 edition as to what portion(s) of the opening within the guardrail or protective barrier needed to be within the 375mm (14.76 in) opening.

This change to "at least one point within the range of 525mm and 950mm above the platform" must be within the maximum openings size of 375mm (approx. 14.76 in). Other openings (i.e. cut-outs at lower portion of the opening) must preclude passage of the torso probe.

This change will have no impact on most traditional style openings which are vertical (i.e. relatively up and down).

Some new designs which are more creative with irregular and/or cut-outs within the opening may be affected.

The intent of the change was to prevent a situation where an opening only met the 375mm (14.76 in) measurement near the platform and opened up greater than the permitted measurement (i.e. a "V" shape).

2003 edition required that openings in a guardrail or protective barrier (AKA half barriers, half guardrails, "D" rings, etc.) have an opening for ascent and descent no greater than 375mm without a top horizontal rail.

Disputes amongst field personnel as to where the 375mm measurement is to be taken have resulted in this change. Was this measurement to be taken at one point near the top or bottom? Or throughout the entire range of the opening?

1998 edition required that openings in a guardrail or protective barrier (AKA half barriers, half guardrails, "D" rings, etc.) have an opening for ascent and descent no greater than 375mm (15 in) without a top horizontal rail.

1990 edition required that openings in a guardrail (AKA "D" rings, etc.) have an opening for ascent and descent no greater than 380mm (15 in) without a top horizontal rail.



Clause 14.2.1.2 – Part 1) Further clarification of what constitutes a "ground level component" and thus does not require a protective surfacing zone. Part 2) Also provides insight into components that connect elevated accessible routes for special needs playspaces (i.e. accessible playspaces) are exempt from the protective surfacing zone requirements (i.e. bridges or ramps that might connect a sidewalk or berm to the play area).

Part 1) Equipment designed so that a user maintains constant contact with the ground during play has no individual protective surfacing zone requirement (e.g. sandboxes, activity walls, playhouses, play counters, etc.).

Part 2) prior to this addition there was no exemption from the protective surfacing zone requirements of elevated accessible routes in special needs play areas. New text to state "ramps, platforms, or other stationary bridges used to connect used to connect an elevated accessible route from the perimeter of the playground to the play equipment shall be exempt from the protective surfacing fall requirements..."

This exemption in Part 2) to work in conjunction with Annex H on accessible playspaces.

Clause 14.2.1.2 of 2003 edition states that items that are intended for a child to be sitting or standing at ground level during play do not have a protective surfacing zone requirement (i.e. they are exempt from the 1.8m/6 ft. rule).

There is a conflict created for components like back-hoe diggers with a seat and storefront panels with a flat section greater than 50mm x 50mm (2 in x 2 in) in that under a different clause any component with an elevated designated play surface requires a protective surfacing zone (i.e. these components are subject to the 1.8m/6 ft. rule).

There is no exemption in the 2003 document for elevated accessible routes (i.e. bridges or ramps) from a protective surfacing zone (i.e. there is no way to connect an asphalt or concrete sidewalk to the playstructure via an elevated ramp because it violates the 1.8m/6 ft. rule).

Clause 14.2.1.2 of 1998 edition states that the protective surfacing zone for stationary equipment must extend no less than 1800mm (72 in) on all side of the playstructure.

No specific exemption from the protective surfacing zone requirements for ground level play components such as activity panels, play counters, etc.

1990 edition corresponds to Clause 8.2.1 – All play equipment over 450mm (approx. 18 in) requires a protective surface to cover the zone of use.

Meaning that all equipment with a fall height of 450mm (approx. 18 in) does not need to have a protective surface



Clause 14.2.2.2 – Standing spring toys require a 2.1m (approx. 82.68 in) protective surfacing zone in the direction of motion of the component. This protective surfacing zone may overlap the protective surfacing zone of other play equipment.  Please note that only 1.8m (approx. 70.86 in) is required surrounding this equipment in the other directions (i.e. not in the direction of motion of the component).	2003 edition requires a 2.1m protective surfacing zone which is not permitted to overlap any other protective surfacing or noencroachment zone.	1998 edition the same as 2003 edition.	No specific information provided regarding standing springing/rocking equipment in 1990 edition.
Clause 14.3.3 – Horizontal axis rotating equipment (i.e. log rolls) – Freestanding play equipment that rotates around a horizontal axis can overlap the protective surfacing zone(s) of other play equipment, except in the direction of motion.  This change allows the support structure of horizontal axis rotating equipment to overlap the protective surfacing zone of other play equipment. It also allows these devices to be attached to a composite playstructure (something that was ambiguous in the 1998 and 2003 editions).	2003 edition corresponds to Clause 14.3.1.2 and 14.3.1.3.  Clause 14.3.1.3 states that no other equipment protective surfacing zone can overlap the protective surfacing zone of equipment that rotates around a horizontal axis. But the composite structure rule exists stating that composite structures (multiple components attached) shall be considered one playstructure.  There is a conflict between the two clauses, and no where in the 2003 edition does it state that one clause supersedes the other.	1998 edition the same as 2003 edition.	No specific information provided regarding horizontal axis rotating equipment (i.e. log rolls) in 1990 edition.



Clause 14.4.2.4 & Figure 29 – Rotating Swings (i.e. Tire Swings) The protective surfacing zones and no-encroachment zones of separate adjacent rotating swings may overlap provided that the swing top rails are configured in a straight line and the distance between support structures is 1.8-meters (70.87 in)

New info present that all rotating swings (i.e. tire swings) can have multi-bay structures (i.e. one structure with multiple bays each containing no more than one tire swing per bay), OR, separate rotating swing structures side-by-side, provided that the swing top rails are in a straight line.

Previous versions of the CSA Z614
Standard have not specifically precluded
this scenario. However, given that the 2 x Y
+ 1.8-meter no-encroachment zones could
not be met without overlapping resulted in
multi-bay rotating swings being deemed
non-compliant.

Please note that Clause 14.4.2.5 still requires that the minimum distance between the rotating swing support structures and adjacent play equipment (i.e. sitting spring toys, climbers, etc.) must be a minimum 2.7m (106.3 in).

Based on text of 2003 Standard, the only way structures with multiple rotating swings can be attached is by means of an extraordinarily long toprail.

This toprail would need to be of such length that structural integrity concerns would arise (i.e. sagging) and the expense would be significant.

Because of both points noted above multiple tire swing structures are not feasible. Based on text of 1998 Standard, multiple rotating swing structures are not permitted (due to protective surfacing zone overlap not permitted).

Based on text of 1990 Guideline multiple rotating swing structures are not permitted (due to protective surfacing zone overlap not permitted).



Clause 15.6.2.3.2 – Multi-user to-fro swing seats – This edition of the CSA Standard clearly allows a multi-user to-fro swing seat if certain conditions are met:

- No more than one multi-user to-fro swing seat per swing bay
- Swing seat to have a minimum diameter of 600mm (approx. 23.62 in)
- Swing seat must be attached by a minimum of four suspension members located a minimum of 600mm (approx. 23.62 in)
- Swing suspension members must be attached at approximately 50degrees
- 5. Swing seat must be impact absorbing
- 6. Swing seat shall not be greater than 20 kg (44.44 lbs)

Rationale for points #3 and #4 are to limit the motion of the swing (and those hopefully minimize impact injuries). No specific information provided to determine compliance/non-compliance of a multi-user to-fro swing seat.

Many would consider multi-user tofro swings to be non-compliant.

Others consider the CSA Standard design restrictive of new components (such as a multi-user to-fro swing seat) and consider them compliant as an "undefined item" as per 2003 edition.

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Minimal demand for a multi-user to-fro swing seat in the marketplace.



Clause 15.14.4.1, 15.14.4.2 & Figure 46 – Fall height of space nets reverts back to 1998 fall height	CSA fall height of pyramid shaped space net is the highest point attainable.	Fall height of pyramid shaped space nets in the 1998 edition is the same as the 2007 edition.	No information regarding pyramid shaped space nets in the 1990 CSA Z614.
Clause 15.14.4.1 – External fall height is the highest point attainable within a horizontal distance of 1.1m (43.31 in) from the edge of the structure where a free fall to the protective surfacing is possible.	Meaning on a pyramid shaped space net of 6-8 meters (20-25 feet) the fall height would be at or near the maximum height of the net.		Pyramid shaped nets are a newer product that began to increase in popularity after publication of the 1990 edition.
Clause 15.14.4.2 – Internal fall height is the highest flexible member, +/-, 30-degrees beneath which a clear free fall to the protective surfacing is possible.			
Net result: This means that the CSA fall height of a pyramid shaped net of 6-8 meters in height (20-25 feet) would be approximately half the total height of the pyramid shaped net. As the highest point of the net it does not permit a fall to the protective surface (as it is not within 1.1m/43.31 in) of the extremity of the net.			



Clause 15.16.1 & 15.16.2 – fall height has been changed to 725mm (28.54 in) above the platform surface if the play equipment is designed for children aged 18 months to 5 years; and 950mm (37.4 in) above the platform surface if the play equipment is designed for children aged 5 to 12 years.  However, if the platform is totally enclosed by protective barriers (i.e. there is no way out) than the fall height is the platform surface (as per 2003 and 1998 editions).  Please note that this fall height change is only for playspaces installed after the date of publication of this edition of CSA Z614 (on or after March 30, 2007). Play equipment installed prior to the date of publication of this edition will have its fall height measured from the fall height of the version of CSA in place at the time of installation (i.e. fall height in accordance with 1998 or 2003 editions). See Clause 1.4 and 10.4.6 of 2007 edition for more information.	Fall height was the top of the guardrail, OR, the platform surface where a protective barrier was present.  No change from 1998 to 2003 edition.	Fall height was the top of the guardrail, OR, the platform surface where a protective barrier was present.	No specific information provided regarding fall heights of play components.  The only relevant information is that protective surfacing must be compliant with the requirements of ASTM F355 and ASTM F429 regarding surface impact testing.
Clause 15.18 – Equipment support posts shall contain no designated play surfaces	Was somewhat ambiguous in 2003 edition in that it was undefined. But as the support posts are often part of the guardrail or protective barrier system they were often considered non-compliant if they contained a designed play surface.	Was somewhat ambiguous in 1998 edition in that it was undefined. But as the support posts are often part of the guardrail or protective barrier system they were often considered non-compliant if they contained a designed play surface.	Designated play surfaces had a different measurement in the 1990 CSA Guideline of 4" x 4" (100mm x 100mm).