

# 3M Fall Protection

**ANSI/ASSP Z359.14-  
2021**

**Self-Retracting Devices**

**An Overview of Change  
2014 vs. 2021 Revision**

**January 2022**

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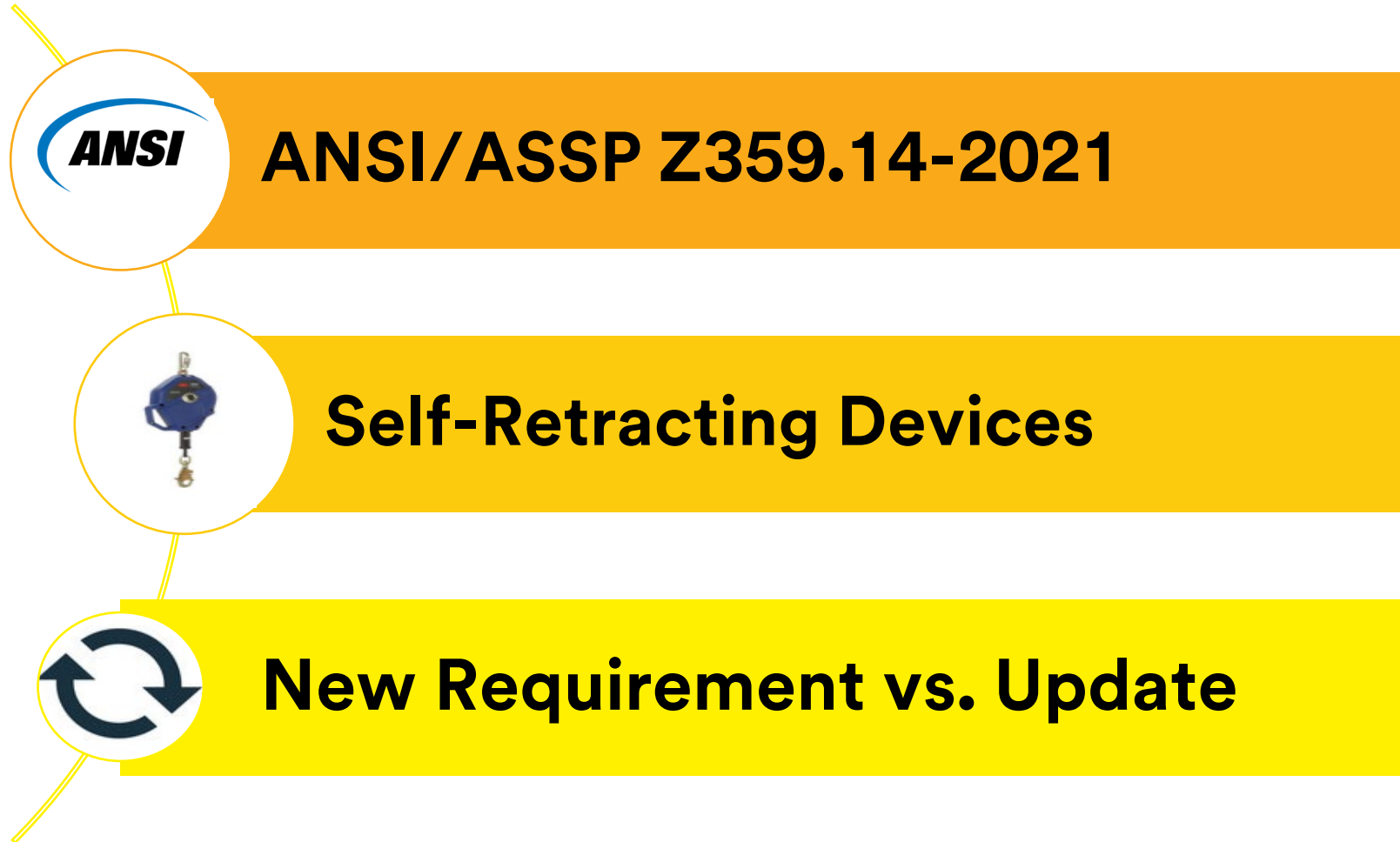
#3MScienceofSafety



# Opening Points

- This presentation on is based on current United States federal requirements. US state or other country requirements may be different. Always consult User Instructions and follow local laws and regulations.
- This presentation contains an overview of general information on ANSI/ASSP Z359.14-2021 standard for Self-Retracting Devices and should not be relied upon to make specific decisions. Completing this program does not certify proficiency in safety and health.
- Information is current as of the date listed for this presentation, and requirements can change in the future.
- This presentation should not be relied upon in isolation, as the content is often accompanied by additional and/or clarifying information or discussion.
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# Agenda



On June 17, 2021, the American National Standard for the Safety Requirements for Self-Retracting Devices (SRDs/SRLs) was approved with an amended effectivity date of August 01, 2023. After this date, manufacturers will be required to conform to this latest revision of the ANSI/ASSP Z359.14 standard document.

**Important Note:** SRL Products manufactured to the previous revisions of ANSI Z359.14 can continue to be purchased and used as originally intended after the effectivity date of August 01, 2023 so long as it was manufactured prior to said effectivity date.

The requirements of this revised standard supersede any corresponding requirements in ANSI/ASSP Z359.14-2014, ANSI/ASSP Z359.1, ANSI/ASSP Z359.3 and ANSI/ASSP Z359.4 American National Standards.

This standard applies to all SRLs used in occupations requiring personal protection against falls from heights and, if required, shall allow for the specialized functions of travel restraint, rescue and or retrieval.

# ANSI/ASSP Z359.14-2021 SRL Device Types

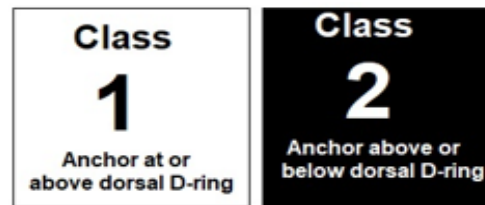
## Self Retracting Device Types

- **Self Retracting Lanyard (SRL):** A device with a locking mechanism and energy management system that arrests the fall and limits the forces imparted to the user
- **Self Retracting Lanyard, personal (SRL-P):** An SRL designed to be worn by the user on a full body harness or alternatively mounted to an anchorage
- **Self-Retracting Lanyard with integral rescue capability (SRL-R):** An SRL that includes integral means for assisted rescue via raising or lowering the rescue subject, including by controlled descent

# Overview of the Changes – Updates vs. New

The following information is provided as an overview of notable changes between the 2014 and 2021 revisions of the ANSI/ASSP Z359.14 standard

1. **New** - ANSI/ASSP Z359.14 test mass has increased from 282 pounds (128kg) to 310 pounds (140kg).
2. **New** - SRL categories have been designated
  - a. SRL
  - b. SRL-P (New) for Personal SRL
  - c. SRL-LE has been removed and will now be designated under Class 2
3. **New** - SRL Classifications implemented replacing 2014 A and Class B devices
  - a. Class 1 SRL – For use with anchorages at or ABOVE the dorsal D-ring. Maximum allowable freefall not to exceed 2 feet
  - b. Class 2 SRL – For use with anchorages at or BELOW the dorsal D-ring. Maximum allowable freefall not to exceed 6 feet (1.8m)



4. **New** - Webbing and Synthetic Rope used in Class 2 devices must now have a minimum tensile breaking strength of 5,000 pounds (22.2kN). Previously, this was 4,500 pounds (20kN).
5. **New** - Class 2 devices are now required to have an integral energy absorber on the lifeline. This energy absorber must meet all the ANSI/ASSP Z359.14 testing requirements or independently meet the ANSI/ASSP Z359.13 requirements. For SRL-P devices where the device attaches to the users dorsal D-ring instead of the anchorage, no energy absorber is required on the lifeline. The SRL must provide some means to dissipate the arresting forces.
6. **New** - Class 2 devices shall include labels illustrating a fall clearance table and diagram of the axes shown in the table. These labels shall be affixed to the product, preferably at or near the point of attachment to the full body harness.

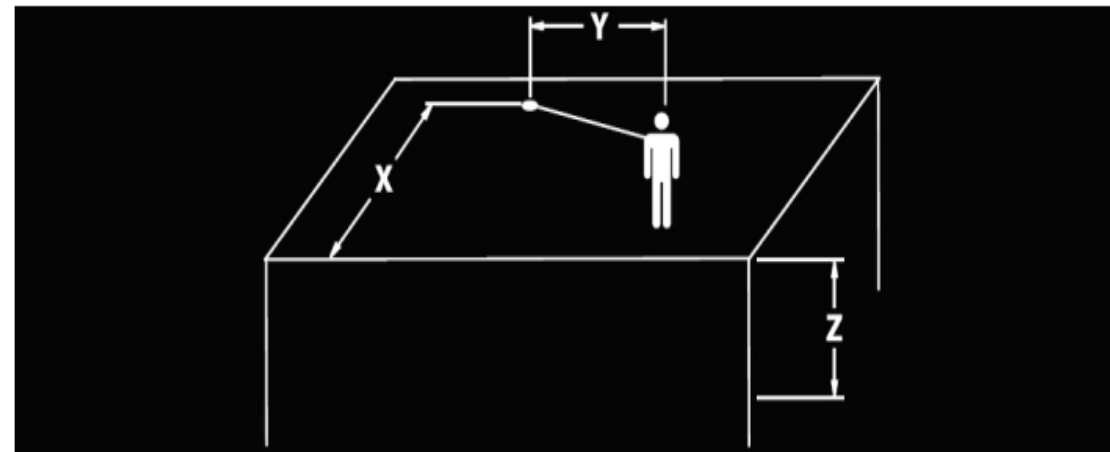
**Class 2 Clearance Chart - Read Instructions for Complete Details**

Set-Back Distance (X)	Distance off Axis of Anchorage (Y)									
	0 Feet	3 Feet	6 Feet	9 Feet	12 Feet	15 Feet	17 feet	20 Feet	23 Feet	
5 Feet	xx.x	xx.x								
10 Feet	xx.x	xx.x	xx.x							
15 Feet	xx.x	xx.x	xx.x	xx.x						
20 Feet	xx.x	xx.x	xx.x	xx.x	xx.x					
25 Feet	xx.x	xx.x	xx.x	xx.x	xx.x	xx.x				
30 Feet	xx.x	xx.x	xx.x	xx.x	xx.x	xx.x	xx.x			
35 Feet	xx.x	xx.x	xx.x	xx.x	xx.x	xx.x	xx.x	xx.x		
40 Feet	xx.x	xx.x	xx.x	xx.x	xx.x	xx.x	xx.x	xx.x	xx.x	xx.x

**WARNING! WORKING IN THIS ZONE MAY RESULT IN SERIOUS INJURY OR DEATH.**

Clearance Required (Z) - Includes 2 Foot Safety Margin

New: Example of a CLASS 2 Integral Clearance Chart

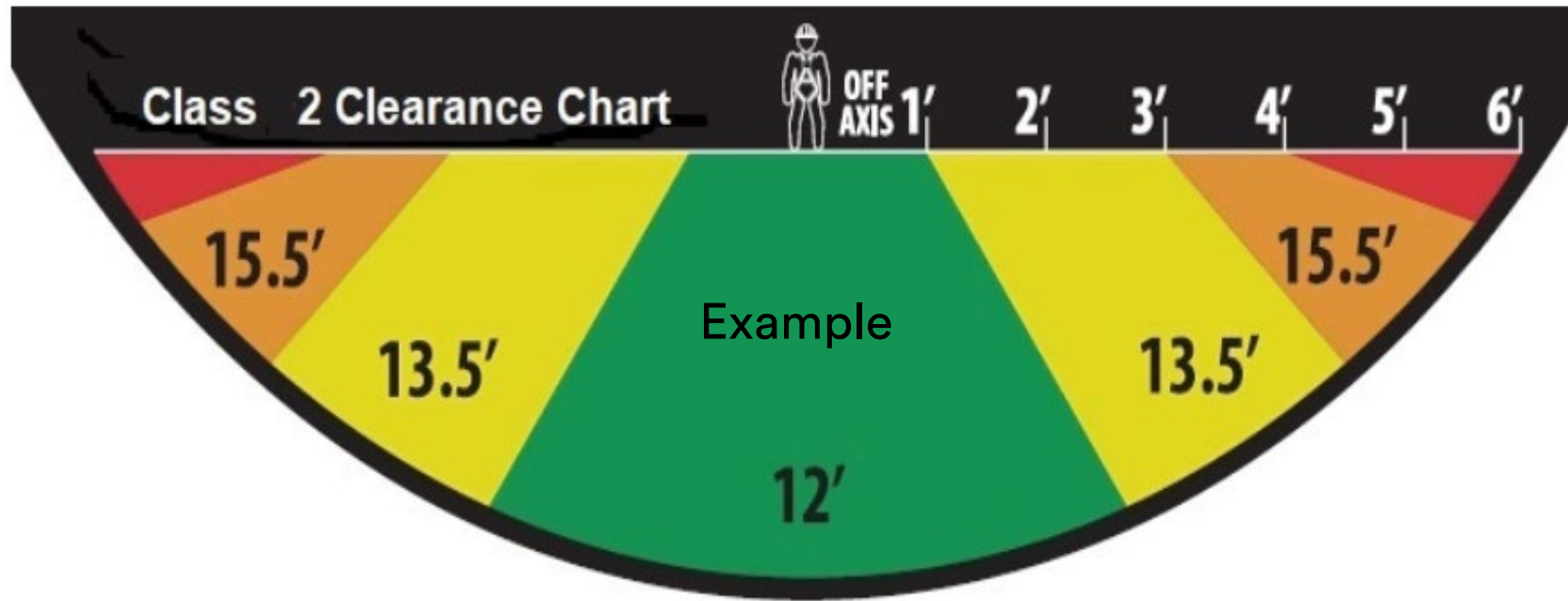


New: Example of a CLASS 2 Illustration of Axes



7. **Updated** - Static Strength Test – All SRLs must be capable of withstanding a 3,600 pounds (16kN) static load for one minute with the lifeline constituent fully extracted. The 2014 revision was 3,000 pounds (13.3kN).
8. **New** - SRLs that do not incorporate an internal braking system must hold a minimum 1,800 pounds (8kN) static load while the brake pawls or other brake activation system is engaged and locked with at least 75% of the lifeline constituent remaining on the drum assembly.
9. **New** - SRL-P devices with twin or dual legs must hold a 3,600 pounds (16kN) load applied from leg to leg.
10. **New** - SRL-P devices designed to wrap around an anchorage or tie back onto itself must hold a load of 3,600 pounds (16kN) applied after completion of 2,500 cycles of abrasion testing with the lifeline constituent wrapped around a testing I-beam fixture.
11. **New** - SRL-P and Class 2 devices DO NOT need to retract after the overhead dynamic performance tests.

12. **New** - Class 2 SRL-P devices shall include a clearance requirement label.



**13.Updated** - During ambient dynamic performance testing utilizing a 310-pound (140kg) test mass, the average arresting force (AAF) permitted has been increased from 900 pounds (4kN) to 1350 (6kN) pounds and the arrest distance (AD) has been shortened to 42 inches (1,067mm).

For the conditioning tests, AAF remains at 1575 pounds (7kN), but the AD is now 42 inches (1,067mm). Arrest Distances overall have been reduced from 54 inches (1,372mm) with conditioning temperatures and times remaining same as previous.

14. **New** - SRL-P devices must pass a dynamic performance test with a 310 pounds (140 kg) weight and a 6 foot (1.8 m) free fall and keep the MAF at 1800 pounds (8 kN) or less. (lifeline does not get pinned or restrained to prevent retraction).

15. **New** - Class 2 SRL must pass a dynamic test over an edge with a 310 (140 kg) pound weight and the AAF must not exceed 1350 pounds (6 kN) and MAF not exceed 1800 pounds (8 kN) ambient and AAF 1575 pounds (7 kN) conditioned.

16. **New** - SRL-R function tests are the same but static testing when in retrieval mode is now 3,600 pounds (16 kN).

17. **New** - SRLs with internal brakes must pass a test with the lifeline shortened to 42 inches (1,067mm), then have 36 inches (914mm) +/- 1.0-inch (25mm) clipped out, then have a 310 pounds (140 kg) weight free falling 2 feet (.6m) and must maintain MAF at 1,800 pounds or less.

18. **Updated** - SRL-P and Class 2 devices can only have up to 48 inches (1,219mm) of line outside the SRL housing when fully retracted down from 60 inches (1.5m).

19. **New** - Warning Card is required to be provided as a separate card insert with each SRL.

**WARNING:** This Class 2 self-retracting device, when attached to a foot-level anchorage, poses significant risk of injury. The user, the competent person and/or qualified person should all acknowledge that normal use of this device **MAY NOT PREVENT A SERIOUS INJURY.**

Failure to follow all manufacturer's instructions and warnings may result in serious injury or death.

# ANSI/ASSP Z359.14-2021 Significant Changes

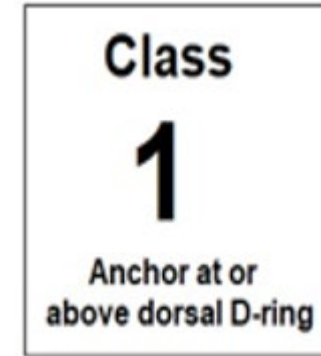
- Lifeline webbing: 4,500 pounds (20 kN) breaking strength to 5,000 pounds (22 kN)
- Ambient Static Strength Test: from 3,000 pounds (13.3 kN) to 3,600 pounds (16 kN)
- Dynamic performance tests:
  - Test weight: 282 pounds (128 kg) to 310 pounds (140 kg)
  - Max Arrest distance from 54 inches (1,372 mm) to 42 inches (1,067 mm) for all conditions
  - AAF from 900 pounds (4 kN) to 1,350 pounds (6 kN) in ambient, 1,575 pounds (7 kN) in conditioning tests
  - New horizontal retraction test
    - Lifeline may not stop during a constant rate of retraction during test procedure
  - New SRL-P twin leg connection test for:
    - Both connectors on the same anchor
    - If MAF exceeds 1,800 pounds (8 kN) a warning must be included on the label

# ANSI/ASSP Z359.14-2021 SRL Device Classes

## Self Retracting Device Classifications

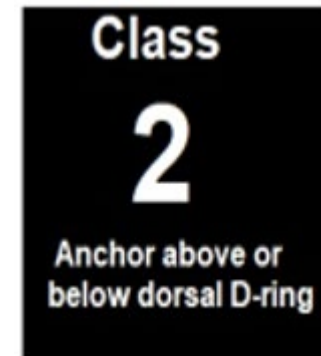
- **Class 1**

- For use with anchorages AT or ABOVE the dorsal D-ring.
- Maximum allowable freefall not to exceed 2 feet



- **Class 2**

- For use with anchorages ABOVE or BELOW the dorsal D-ring.
- Maximum allowable freefall not to exceed 6 feet (1.8m)
  - Leading Edge Devices will be identified with this classification.
  - SRL-LE will no longer be used as an SRL class designation



# FAQs

## 1. Is it mandatory that I must update my existing SRL's to the new ANSI/ASSP Z359.14 standard revision after the August 01, 2023 effectivity date arrives?

- **NO**, existing SRL equipment manufactured to previous revisions may continue to be used provided it continues to meet all inspection requirements as defined by the manufacturer's instructions for use.

## 2. Have the arresting distances changed for both classes?

- **YES**, the new maximum deceleration distance for both a Class 1 and Class 2 is 42 in. (1,067mm)  
The previous distance was 24 in. (610 mm) for Type A and 54 in (1,372 mm) for Type B.

## 3. Has the ANSI/ASSP Z359 Fall Protection Code increased the maximum user weight capacity?

- **NO**, ANSI/ASSP Z359 Fall Protection Code defines user weight capacities as between 130 lbs. (59 kg) and 310 lbs. (140 kg).

## 4. Has the ANSI/ASSP Z359.14 qualification testing mass for manufacturers been increased?

- **YES**, the testing mass has been increased from 282 pounds (128 kg) to 310 pounds (140 kg)

# FAQs Cont.

## 5. Are there any new labeling requirements?

- **YES**, new labels are required to be affixed to the product displaying the device Class, along with a fall clearance indicator table, preferably at or near the point of attachment to the full body harness. This information will indicate minimum fall clearance based on position of the worker on the working surface.

## 6. Is there any additional warning information required with the SRLs?

- **YES**, for Class 2 SRDs (Leading Edge SRLs), a new warning card is now required to be provided as a separate (orange) card insert. This card acknowledges that there are risks with leading edge applications and users should follow all manufacturer's instructions and warnings.

## 7. Are there new SRL classifications created with this Standard revision?

- **YES**, under each SRL category, there are now new Class designations. The previous Class A and Class B devices have now been re-designated as Class 1 or Class 2 devices, under the new ANSI Z359.14-2021 standard. SRDs must now show a Class 1 or Class 2 SRD label on the product in order to designate its Class type.
  - a. Class 1 SRD – Must be used with an anchorage point at or above the dorsal D-ring.
  - b. Class 2 SRD – For use with an anchorage point either above or below the dorsal D-ring.

This means for applications requiring an anchorage point below the dorsal D-Ring, and when using SRDs certified to the new ANSI/ASSP Z359.14-2021 standard, a Class 2 SRD must now be used.



# FAQ's Cont.

## **8. Can distributors still sell SRDs after the August 1, 2023 effectivity date arrives?**

Even after August 1, 2023, a distributor can continue to sell any existing inventory of their SRDs if those devices have a manufacturing date of prior to August 1, 2023. Any SRDs manufactured after August 1, 2023 shall be certified to the new ANSI Z359.2021 standard by the manufacturer, in order to be sold to end users.

## **9. Will my existing Fall Protection anchorage be sufficient to use with the Self-Retracting Lifelines newly certified to ANSI/ASSP Z359.14-2021?**

With the ANSI/ASSP Z359.14-2021 standard having new requirements for the allowed Average Arresting Force (AAF) increasing from 900 lbs. (4 kN) to 1,350 lbs. (6 kN), it is necessary to confirm the strength of your anchorage is sufficient for the increased values in AAF. Always check the product label for the actual AAF indicated on the Self-Retracting Lifeline, to validate use with appropriate anchorages.

Note: Some Self-Retracting Lifeline models may have a AAF of less than 1,350 lbs., and still meet the new ANSI/ASSP Z359.14-2021 standard.

# Key Takeaways

- **Classification:** Users must select the appropriate Class SRL designation for their application.
  - a. Class 1 SRL – For use with anchorages AT or ABOVE the dorsal D-ring. Maximum allowable freefall not to exceed 2 feet
  - b. Class 2 SRL – For use with anchorages ABOVE or BELOW the dorsal D-ring. Maximum allowable freefall not to exceed 6 feet (1.8m)
- **Anchorage Selection:** Users shall confirm that their fall protection anchorage points are sufficient to withstand the SRLs newly increased average arresting force (AAF) of 1,350 pounds (6 kN) or as marked or directed by the SRL manufacturer.
- **Effectivity Date:** All SRLs manufactured after August 01, 2023, will be required to conform to this latest revision of the ANSI/ASSP Z359.14-2021. As an industry leader, 3M Fall Protection is committed to meeting or exceeding this requirement.
- **SRL's manufactured prior to new standard:** SRLs manufactured to previous revisions of the ANSI Z359.14 standard may continue to be used provided the product continues to meet the inspection requirements as defined by the manufacturer and are conducted at the recommended inspection intervals by a Competent Person.

# Where can I obtain more information?

- You may contact your local 3M Fall Protection Distributor where you originally purchased your products.
- You may request to speak with a local 3M Representative or Fall Protection Specialist in your area by contacting our customer service department at 800 323 6146 or email [3MFallProtection@mmm.com](mailto:3MFallProtection@mmm.com)
- You may contact 3M Fall Protection Technical Services at 800 323 4630 or email [3MFallProtectionTech@mmm.com](mailto:3MFallProtectionTech@mmm.com)
- Reference 3M Technical Bulletin <https://multimedia.3m.com/mws/media/20935040/3m-ansi-assp-z359-14-2021-standards-update-summary.pdf>

The background consists of a complex, abstract pattern of overlapping triangles in various shades of yellow and orange. The triangles vary in size and orientation, creating a dynamic and textured visual effect. The colors range from bright, vibrant yellows to deeper, more saturated oranges, with some areas appearing as lighter, almost white highlights where the triangles overlap.

**Thank you**