



LEVR Guidance for Frequently Used Systems

This document is intended to provide additional guidance specific to the inspection and retirement of LEVR Escape Systems that have seen frequent use, such as repeated training evolutions. Before referring to the information below, please be sure to follow all inspection procedures outlined in the product manual.

As with any life safety product, it is the responsibility of the user to verify the proper function of the equipment to ensure it performs as expected and is ready for emergency use. Failure to follow the retirement criteria described here, or in the manual, will increase the inherent risks involved with using this equipment.

System Lifespan

The LEVR Escape System is constructed from robust, high strength materials. However, it is intended to be a limited usage device. High frequency or high intensity use, such as repeated training evolutions, can lead to excessive wear and retirement. The limiting factors tend to be the condition and strength of the Fire Escape Web and the wear of friction surfaces on the LEVR Descender. Please review the details below when evaluating the impacts of frequent use. Refer to the product manual for more retirement criteria. Please note that regardless of usage, soft goods require replacement after 10 years of service per NFPA 2500 (Chapter 35 Retirement and Disposition Procedures).

Component Evaluation

Fire Escape Web

Research on the lifespan of our Fire Escape Web has shown that it can degrade with frequent use. We found that impacts to tensile strength and holding capacity are minimal when the total number of descent cycles is limited to 100 evolutions. Therefore, our recommended training utilization for a personal escape system intended to last 8-10 years would be approximately 3-4 times per year with 2-3 descent cycles per session.

| Recommended Training Utilization | | |
|---|-------------------------------------|------------------------------------|
| Intended Lifespan | Number of Trainings Per Year | Descent Cycles Per Training |
| 8 - 10 years | 3 - 4 sessions | 2 - 3 evolutions |

Regardless of the number of descent cycles, retirement should be considered when excessive wear becomes apparent. Please refer to the photos below when evaluating the condition of your Fire Escape Web and determining when it should be retired.

For departments that intend to train more frequently, CMC's recommendation is to have dedicated training units. When using a dedicated training unit in a controlled training environment in conjunction with a belay system, the integrity of the web becomes less of a concern and the total number of descent cycles on a given length of web can reasonably exceed 100 evolutions.

For these dedicated training units, the webbing should be inspected using the criteria below and replaced when excessive wear becomes apparent. CMC offers replacement web kits in 40 ft and 50 ft lengths to extend the lifespan of training units. Other system components such as the LEVR Descender should also be evaluated in accordance with the manual and the guidance on the following pages to determine if retirement is needed.

Indications of Wear Resulting in Retirement

- Excessive fraying of the Fire Escape Web.
- Cuts, abrasion, or broken strands in the webbing.

Example Photo

Determination



Condition: new - no signs of fraying, cuts, abrasion, or broken strands.

 **PASS**



Condition: used – shows some fraying, not excessively frayed or otherwise damaged.

 **PASS**
(MONITOR)



Condition: failed – shows excessive fraying, broken web strands, and discoloration.

 **FAIL**

LEVR Descender

If there are indications of wear on the LEVR Descender, the reliability of the system should be called into question. Frequently used LEVR Descenders should be evaluated for their ability to hold a static load. The static holding capacity can be determined by hanging a mass on the attachment carabiner. A person(s) on belay and/or additional equipment could be used as the test mass, however, using weights is usually the most practical and safest option. As an additional safety measure, perform this procedure low to the ground.

When evaluating the LEVR Descender static holding capacity, refer to the table below for resulting actions:

| Static Holding Capacity | Resulting Action |
|-------------------------|------------------------------------|
| <300 lbs | Retire immediately |
| 300-600 lbs | Monitor for functional performance |
| >600 lbs | Fully serviceable |

In addition to evaluating the static holding capacity, retirement should be considered when excessive wear becomes apparent. Please refer to the photos below when evaluating the condition of your LEVR Descender and determining when it should be retired.

Indications of Wear Resulting in Retirement

- The device can no longer hold a single person load (i.e. 300lbs).
- The LEVR Descender metal bollard does not move freely.
- There is any motion of the 3 exterior assembly pins on the side of the device.
- Sharp edges, burrs, and/or excessive wear (minor nicks and burrs may be smoothed with emery cloth)
- Scalping of the LEVR Descender friction groove.
- Broken stitching or excessive fraying of the integrated personal tether.

Example Photo

Determination



 **PASS**

Condition: new – no sharp edges, scalloping, or excessive wear.



 **FAIL**

Condition: failed – scalloping and sharp edges in rope path.



 **PASS**

Condition: new – no sharp edges, scalloping, or excessive wear.



 **FAIL**

Condition: failed – scalloping and sharp edges in rope path.