



The Safety Corner

From the Marine Corps Center for Lessons Learned
August 28, 2006



Fall Protection

This issue of the Safety Corner highlights lessons and observations about Fall Hazards and working at heights identified from current operations in OIF.



From the Director: ...

Over the past few years, we have noticed that many of the lessons and documents entered into the Marine Corps Center for Lessons Learned (MCCLL) Lessons Management System (LMS) have addressed safety issues. In an effort to ensure that these safety-related observations and recommendations receive the widest possible dissemination, MCCLL has begun publication of *The Safety Corner*. We hope that you find this publication of interest and helpful in reducing possible risks while maintaining high operational readiness.

Being a Marine is an inherently dangerous job; being a Marine in Iraq is even more dangerous. There are any number of hazards that present themselves or that are lying in wait for us. Whether it's something as hard as clearing buildings in Ramadi or as easy as dismounting a five-ton truck, preventing fall injuries is mostly a matter of situational awareness. As Marines, this is nothing new since we are constantly trained to recognize both battlefield and routine safety hazards. This weeks Safety Corner looks at fall hazards to help keep Marines aware of some of the every day risks we face.

I look forward to your lessons and observations on safety as well as comments on my observations and recommendation on how to increase our readiness for the long war.

Semper Fidelis,
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The observations and recommendations contained in The Marine Corps Center for Lessons Learned (MCCLL) Safety Corner represent the considered judgment of Marines who have identified safety issues in their units. The purpose of this newsletter is to apprise other Marines of these safety recommendations and to encourage them to enter their own lessons into the Marine Corps Lessons Management System (LMS).

Attention Safety Officers!

The Marine Corps Center for Lessons Learned is working closely with the Safety Division of HQMC to bring safety to the forefront. We need your help. We need you to register on our search enabled website at www.mccll.usmc.mil. Registering will allow you to enter your own safety lessons, briefs, photos, TTPs, SOPs and almost anything else into our system. By doing so you are passing this information along to Marines and other allied forces around the world. You will also have access to safety information submitted by your peers. We would also like to identify safety performers; so please send us write-ups and photos of you and your safety-conscious Marines.

Migrate to www.mccll.usmc.mil.



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Fall Injuries

Fall protection and ladder safety are consistently on the OSHA top ten list of most cited violations each year. According to the U. S. Consumer Product Safety Commission, over 547,000 people were seen in emergency rooms last year for injuries relating to ladders alone.

Fall hazards are prevalent in many of the tasks and work environments in which Marines and Sailors work daily. In training and normal work environments, Marines and Sailors are protected by OSHA (Occupational Health and Safety Administration) Standards. They have time to use fall protection equipment and follow safety procedures as required for various activities. In a forward deployed situation many of these precautions can not be taken due to time constraints. The nature of forward deployed operations causes Marines to be loaded down with extra gear and moving at a higher tempo through unfamiliar and an unstable environment.

Over the past couple of years 27 Class A/B mishaps were *reported* resulting in 17 Marines/sailors killed and 11 injured. The Army reported the loss of six soldiers killed and 117 injured as a result of a fall from heights. These injuries range from jumping from vehicles and walls to falls from scaffolding and helicopters.

Marines are tough and can overcome almost any obstacle, but sometimes these obstacles can lead to unnecessary injuries. The gear Marines carry for combat can easily make them off balance. This weight can increase the severity of even a short fall. Marines need to be aware of the dangers of heights and the effect of extra weight their back, legs, and ankles.

[Expeditionary Field Ladders](#)

LESSON ID: 41617

Craig Mears, a Tactical Safety Specialist with MCB Quantico, observed a trend involving Marines using makeshift ladders out of scrap and, in most cases, unserviceable lumber.

Homemade ladders create several fall hazards and significantly increase the chance for a mishap. Many ladders are poorly constructed and do not meet OSHA standards. These ladders have uneven rungs, improper feet, are uneven and unstable. They do not meet minimum weight requirements. Safety Officers need to inspect workplaces for these ladders and have them destroyed immediately.

Ladder Safety Tips:

Here are few ladder safety tips to ensure the proper use of ladders and reduce the chance of a mishap occurring.

Inspect ladders. Check the ladder for any loose screws, hinges, and broken or cracked rungs. Ensure ladder rungs are clean and free of anything that may reduce traction on Ladder rungs.

Properly set up ladders. Every ladder should be placed on a firm, level surface. Never place a ladder on ground that is unstable or uneven. Do not set up ladders near power lines. Ladders should be installed with a 4:1 ratio (or 75°) in mind. This means for every 4 feet up the ladder needs to be 1 foot out.

Do not use a ladder as a seat between tasks. Never use a step ladder's top or pail shelf as a seat.

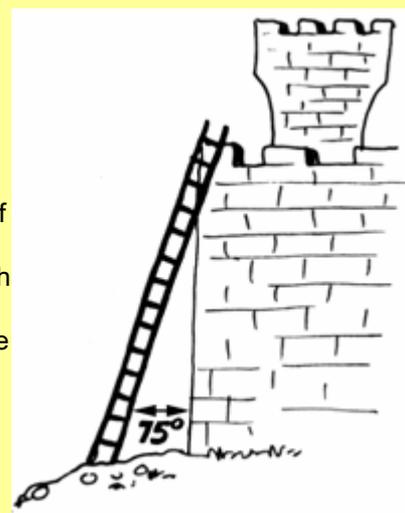
Select the right ladder for the job. Check ladder height and weight support needed for the job. Also keep in mind metal and wood ladders can conduct electricity.

Always reposition the ladder closer to the work. Over reaching or leaning far to one side when you're on the ladder could make you lose your balance and fall.

Be careful when climbing, get help if you need it. Be safe, ask someone to hold the ladder while you climb. Stay in the center of the ladder as you climb, and always hold the side rails with both hands.

Do not climb above the 3rd step from the top of a ladder or identified safety step.

Climbing above these steps greatly increases the chances ladder tipping over and also does not give the Marine anything grab hold.





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What kinds of injuries result from falls from heights?

A fall from even a short height (<6 feet) can be fatal depending on the position of the body and surface which the individual impacts. Below are some injuries which have been reported in falls:

- **Traumatic Brain Injury** – A TBI can occur in varying degrees depending what the head may strike. A TBI may be minor, such as headache, to unconsciousness, coma, or death
- **Fractured (Broken) Bones** – The impact of the fall can result in broken bones and dislocated joints. The severity of a broken bone can also lead to internal injuries.

First Aid!

A fracture is a broken bone. It requires immediate medical attention. Take these actions while waiting for medical help:

Stop any bleeding. Apply gentle pressure to the wound with a sterile bandage, a clean cloth or a clean piece of clothing.

Immobilize the injured area. Don't try to realign the bone, but if you've been trained in how to splint and professional help isn't readily available, apply a splint to the area.

Apply ice packs to limit swelling and help relieve pain until emergency personnel arrive. Don't apply ice directly to the skin — wrap the ice in a towel, piece of cloth or some other material.

Treat for shock. If the person feels faint or is breathing in short, rapid breaths, lay the person down with the head slightly lower than the trunk and, if possible, elevate the

legs.

Reported Mishaps

- 21 Jun 06** – Two Soldiers were killed during rescue operations in Afghanistan. when a hoist cable failed, causing a PFC and a Sgt to fall 30-feet to the ground.
- 23 Mar 06** – A contractor was killed from a fall from a 40-foot scaffold when the scaffold was entangled in a crane cable lifting equipment to the top of the scaffold.
- 5 Mar 06** – A Sgt performing maintenance on a helicopter climbed to the top of the aircraft to take a hydraulic oil sample while the rotor blades were turning. A rotor blade struck the Sgt causing paralysis below the waist.
- 12 Dec 05** – A SPC in Iraq sustained fatal injuries when he fell 15 feet through a trap door in a guard tower. The wood used to cover the trap door was found to the left side of the opening.
- 3 Nov 05** – A Capt died of severe trauma as a result of a fall in flight from a Blackhawk helicopter in Iraq. The Capt fell from a height of approximately 100 ft. on the approach to a hostile area
- 18 May 05** – A Cpl severed his ring finger on his left hand when jumped from a MTRV. The Cpl's wedding ring caught on a piece of metal.



Log on to www.mccll.usmc.mil and post Comments to these Lessons, or send an Email to Brandon.Kelly1@USMC.MIL



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MTVR Egress

Many of the situations encountered during current operations have forced Marines to use traditional equipment in a non-traditional way. One example of Marine ingenuity is the use of the MTVR as a motorized infantry vehicle. The MTVR is designed to be a part of the logistic backbone of operations and as a non-offensive troop transport. It was reported by I MEF that the current ladder attached to the MTVR fitted with the MAS (MTVR Armor System) did not support the need for rapid ingress/egress of Marines. This deficiency, as reported in the UNS (Universal Needs Statement), led to the procurement of the GETFO (Get Forces Off and On).

The basic design of the GETFO (lower right) is a ladder with 2 poles for Marines to slide down. The GETFO allows Marines to deploy from the 7-Ton as quickly as possible. With the speed (14 Marines in 12 seconds vs. the MAS at 25-30 seconds) the GETFO allows Marines to deploy, there are safety issues which need to be kept in mind. The extra weight of the combat loaded Marine combined with the stress and confusion of a combat situation can lead to several ankle and knee injuries.

The first step to reducing hazards with any system is proper training. Marines need to be aware of the hazards associated with each system. The advantages and disadvantages of each system extend beyond just quickly dismounting troops. Other factors need to be considered in conjunction with the mission requirements, i.e. terrain, ground clearance, towing, and trailers.

The MAS and GETFO have been approved for in-theater use only (the only exception is Mojave Viper). For further information, as well as feedback, on the MAS or the GETFO, please contact the MTVR Project Officer at Marine Corps Systems Command, Major Ruth Cisneros at 703-432-3627 or email at ruth.cisneros@usmc.mil.



The MAS is installed with the ladder pictured left. The ladder can fold up for movements and can be deployed to unload Marines. The design allows Marines to step up and down safely with little jumping involved.

Safety Concerns with the MAS ladder is the lack of a hand rail to assist Marines climbing the ladder. If a Marine is injured coming down the ladder he can create a hazard for Marines disembarking behind him.

The GETFO (pictured right) is designed to allow Marines to exit the vehicle quickly. The design allows Marines to slide down the pole and move away from the door to allow the next Marine to egress.

Safety concerns reported on the GETFO are the increased chance of Marines suffering lower leg injuries from improperly using the poles. If a Marine is injured, other Marines will still be able to exit safely while the injured Marine is treated. Demonstration videos and instructions are provided with the GETFO.

