Travis Ford Bio:

Travis Ford is a professional engineer who performs industrial rope access inspections of many of the largest bridges and dams in the United States. He is a SPRAT III supervisor for HDR Engineering Inc. and combines the need to keep the public safe with keeping the structural inspection team safe. He is meticulous at creating a safe working environment and will not accept complacency. Mr. Ford is experienced in complex structure rigging and rescue. He has never performed an active rescue of an unconscious patient on the job, but has used his rope access skill set to guide capable personnel out of potentially hazardous situations. Mr. Ford is here to share experiences from the field of structural inspection and to continue to better prepare himself and his teams.

Abstract (Safety Inspecting Bridge Floor Systems Using Rope Access-Efficient Rescue Techniques):

Safely Inspecting Bridge Floor Systems using Rope Access – Efficient Rescue Techniques

Why and how do you perform a bridge inspection when the requirement is to be within arm's reach of the floor system? This paper will discuss a few methods used, and then focus on rope access and personnel rescue considerations.

A fracture critical bridge is a steel structure that is non-redundant. Fracture critical members are structural components in tension within the bridge that do not have redundancy. According to FHWA it is required to have an arm's reach inspection every 2 years. The importance of this inspection is to look for fatigue cracking which can be small and difficult to determine without a close-up inspection. There are several methods used by engineers and technicians in order to access these structural components. Accessing the truss components can be a challenge, but this paper will focus specifically on accessing steel floor system components and the lessons learned.

The methods used to access fracture critical floor systems can include ladder, bucket or man lift, snooper, or Rope Access. At this time drones are neither permitted to inspect fracture critical structures, not have they proved capable of the detail and crack identification methods required for this type of inspection. It is anticipated that fracture critical inspections continue to be conducted within arm's reach by the human eye.

There will be a brief review of the types of equipment used for each access method, and then a focus on typical industrial Rope Access equipment. The remaining portion of the paper will focus on the rope access inspection of floor systems and considerations for rescue personnel. The HDR Engineering Rope Access Bridge Inspection Team (HDR RABIT) has investigated the challenges associated with rescuing a patient from a rope access floor system inspection. Several field trials have been completed and lessons learned. Rescue in the training center can be different from the field and this paper will discuss how the team was able to conduct several trials and bring what was learned back to the Ropeworks training center in Reno, NV to refine the approach and achieve efficiency.