

## DO HOOPED LADDERS PROVIDE A SAFE MEANS OF ACCESS?

*David Riches, Safety Consultant, and author the HSE's research report 258 "Preliminary investigation into the fall-arresting effectiveness of ladder safety hoops", talks about hooped ladders.*

**Hooped or caged ladders** are fixed ladders that have a circular and vertical bar arrangement which encloses the path of a worker when climbing a ladder.

### FINDING OUT

RR 258 is a report on research commissioned by the HSE, the purpose of which was to find out about what hooped ladders are and do. At the time, various documents specified hoops on ladders, and gave the impression that their purpose was to stop a worker's fall. But a lack of knowledge about hoops, and accidents, were causing questions to be raised by persons conducting risk assessments as to whether hoops could provide any form of fall-arresting capability.

RR 258 ascertained that hoops could not provide the same level of protection compared to fall-arrest systems (FAS), although some documents reviewed tried to put them on a par, by confusing the issues or using vague language. In addition, indications from evidence in hooped ladder accidents were that falls were being stopped by impacting the platform below the ladder, as opposed to being caught in the cage.



***"in real life would be fatally injurious"***

### TESTING

It was decided to simulate falls discover what might happen in real life. Tests were conducted using a lifelike test dummy. Impacts were recorded on the dummy's spine and fall motion was recorded using high speed video. In 3 of the tests, the test dummy fell 6m down the cage onto the floor, after first striking the cage several times. The final impacts were around 23g, which in real life would be fatally injurious. In 4 of the tests the test dummy managed to jam in the cage but at levels of impact that would cause significant injury. In such a case rescue would be extremely difficult.



### Conclusion

RR 258 concluded that hooped ladders could not stop a fall positively, and unless they could be modified in some way to demonstrate that they could, their use should be abandoned. Interestingly, when the Working at Height Regulations (WAHR) were published, hooped ladders were not included. It was also recommended that the impression given that hooped ladders can provide the same level of protection as FAS should be discounted in future documents, and their inability to positively arrest the fall of a worker should be made clear, especially to personnel having duties under legislation.

***"their use should be abandoned"***

This would include organisations that engage in work at height who have obligations under WAHR and MHSWR and architects and civil engineers who have obligations under CDMR. Other tests showed that FAS were able to arrest a fall much more effectively and safely than a hooped ladder could. It should be noted that these tests were far more comprehensive than those in the BSEN 353-1 FAS standard, and are now being adopted by industry in addition to 353-1. These are the so called "HSE 8" tests, which are a response to the findings of RR 258 and a HSE safety warning.

On the positive side, hooped ladders may give a worker psychological reassurance, and a worker may be able to rest half way up a ladder by pivoting about the feet and resting the back against the rear of the cage. The former point may be true, but the latter



### Way Forward

On new vertical ladders, installed FAS that meet the HSE 8 tests are really the best form of fall protection and the practice of specifying hoops should be discontinued. In existing hooped ladder installations FAS should be installed to give positive fall protection and hence a safe means of access. However these FAS should first be tested in conjunction with a hooped ladder to ensure that any incompatibilities between the two methods do not prevent a fall from being arrested, and do not cause serious injury. This topic is the subject of another HSE report, which is now in the course of being published.

AUTHOR: David Riches of Safety Squared  
david.riches@safetysquared.net

**Watch the test video:**

<https://www.youtube.com/watch?v=N-jH7C664zU>

**RR 258 can be downloaded free of charge at:**  
<http://www.hse.gov.uk/research/rrhtm/rr258.htm>