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## **Report of the Week**

### **Did the staircase just buckle?**

**08/19/2010**

**Report Number:** 10-0001048

Report Date: 08/12/2010 14:58

#### **Synopsis**

Attic stairs collapse during training.

#### **Demographics**

Department type: Volunteer

Job or rank: Fire Fighter

Department shift: Other

Age: 43 - 51

Years of fire service experience: 0 - 3

Region: FEMA Region III

Service Area: Suburban

#### **Event Information**

Event type: Training activities: formal training classes, in-station drills, multi-company drills, etc.

Event date and time: 07/22/2010 20:00

Hours into the shift:

Event participation: Involved in the event

Weather at time of event: Clear and Dry

Do you think this will happen again?

What were the contributing factors?

- Procedure

What do you believe is the loss potential?

- Lost time injury

#### **Event Description**

While participating in a drill at an acquired structure, a three person crew was directed to advance a line to the second floor. The building was a small single story residential structure with a small attic/second floor which was accessed via a drop-down stairs. For the drill, the building had been filled with smoke which limited visibility.

The crew advanced the line through the front door and located the drop-down steps. The lead firefighter advanced the line up the stairs as the backup and the third firefighter pulled hose into the building. Once the firefighter on the nozzle got off the stairs, the backup firefighter climbed to the top and advanced the line into the attic. While feeding the line upward, the backup firefighters later reported they felt the stairs shift slightly. They attempted to climb the last couple steps to the second floor when the stairs collapsed. The firefighters dove forward and were able to land partially on the second floor and pull themselves onto the second floor. A ladder was brought into the house to replace the failed stairs. It was later determined that the top of the drop-down stairs had pulled free from the attachment to the building.

Did the staircase just buckle?

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## Lessons Learned

At the start of the drill, the condition of the drop-down stairs had been discussed and it was determined that they appeared sound and should be fine for the drill. While the structure of the stairs may have been adequate, their attachment to the building was not.

While no injury occurred, it certainly was possible for the outcome to have been different if the firefighters on the stairs had not reacted as they did or if someone had been under the stairs at the time of the collapse. This illustrates why firefighters should not trust ladders or non-standard stairs that are present at a scene. If in doubt, use your own equipment.

## Discussion Questions

A review of pull-down attic stairs reveals a range of engineered weight-bearing possibilities that runs from 350 pounds to 800 pounds. Engineering is one thing, and installation is another. Even a medium sized firefighter weighs close to 300 pounds once fully dressed out in PPE and other equipment. Once you place two firefighters on a staircase, and the assembly is overloaded by 250 pounds. When you factor in that the installation may have been conducted by a "Harry Homeowner" and half a box of 16 penny nails on a Saturday afternoon, and all the components are in place for a failed stairway and a firefighter scum pile. Once you have read the entire account of [10-1048](#), and the related reports, consider the following:

1. How many different types of pull-down staircases are available from your local building supply store?
2. Does your local building code require a permit for the installation of an interior pull-down attic staircase?
3. Are there any "size-up" tips you can share for determining if the pull-down staircase was installed properly and will support the rated weight?
4. Are your crewmembers aware of maintaining proper spacing on a pull-down staircase so the stair is not overloaded?
5. What alternatives could be used to bypass the hazard of the pull-down staircase altogether?

## Related Information

Check out this web based tutorial on installing a pull down staircase to get an idea of what is involved. Note that the pull down staircase is not recommended for installation in a truss roof. Why isn't a pull-down staircase recommended for a truss roof?

[http://www.easy2diy.com/cm/easy/diy\\_ht\\_index.asp?page\\_id=35720153](http://www.easy2diy.com/cm/easy/diy_ht_index.asp?page_id=35720153)

## Related Reports – Topical Relation: Attic Access, Pull-Down Stairs

[05-241](#)

[06-256](#)

[07-1184](#)

[08-377](#)

[09-218](#)

Note: The questions posed by the reviewers are designed to generate discussion and thought in the name of promoting firefighter safety. They are not intended to pass judgment on the actions and performance of individuals in the reports.