



## SUSPENDED SCAFFOLDING SECTION

# SSFI TECHNICAL BULLETIN

## Wire Rope Care and Handling

Damaged wire rope may jam in a hoist and can create a hazard to swing stage operators and bystanders. Using gloves, uncoil wire rope by rolling the rope in a straight line to avoid entanglement. If you pull wire rope off a reel sideways, it acts like a spring and will twist on itself.

Limit the amount of excess rope as much as possible. When using swaged wire rope terminations or wedge socket fittings, coil the excess rope below the platform in such a manner that the coil of wire can rotate. This helps prevent unlaying of the strands, which is evident when the core shows. Try to limit the length in the coil to 25 feet to allow any twists to work themselves out.

In some cases, the tail or free end of the wire rope needs restraint to keep it from slapping against the structure or to resist wind displacement. In that case, a swivel with a ball bearing can be attached to a ballast weight. Ballast weight will vary by rope lever, wind conditions, and other site specific conditions. Do not suspend the ballast weight. Only a short length of the suspension wire rope should extend beyond the swivel to allow rotation.

Attachment of the bitter end of the wire rope to the platform is not recommended. This prevents rotation and creates a snag hazard when the platform moves.

Traction hoist manufacturers suggest excess rope be stored on the roof with only enough wire rope to reach a lower safe surface plus about five feet for reaving. Excess rope must be suspended and rolled as noted above. If J clamps are used, they are fastened somewhere along the length of wire rope. The use of J clamps permanently deforms the wire rope.

Permanent deformation is considered good reason to scrap the wire rope. For example, if there is 200 feet of wire for a 100 foot drop, 95 feet would be stored on the roof: a 100 foot drop plus five feet extra hanging from the J clamps. After the job, there is a 200 foot wire rope with a kink in the middle caused by the J clamps. Any deformation must be cut out or else the rope must be scrapped. Reuse of the 200 foot wire rope with a kink could cause a hoist jam. Furthermore, the ultimate strength has been reduced because of the deformation.

The rope should be scrapped, and should not be used as a tieback rope, because regulations require that a tieback rope be equivalent in strength to the primary suspension rope. A damaged or permanently deformed wire rope should not be used for tieback rope because it is now weaker than the primary rope. Would you want your tieback to fail when needed to keep the rigging from falling off the roof?

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This Technical Bulletin was prepared by members of the SSFI Suspended Powered Scaffolding Section.

SSFI is a trade association comprising manufacturers of shoring, scaffolding, forming, and suspended scaffolding. The institute focuses on engineering and safety aspects of scope products.

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Following are some additional considerations regarding wire rope:

- Do not allow a load to rotate. A workcage or motorized chair should be guided to prevent rotation. Rotation will cause the rope to open up.
- Wire rope should be regularly lubricated with a light oil. Rope with 5 x 26 construction has 130 wires that must move in relation to one another as the rope bends around a traction sheave. Oil gives longer life to the wire rope.
- Make sure that guides and sheaves turn freely as the wire rope moves. A moving rope over a nonmoving object will create a permanent pigtail (curl or corkscrew).
- Proper care and handling will increase wire rope life and prevent damage.

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