

Calculating the Load on a Suspended Scaffolding Hoist

This technical bulletin is to aid in determining the components that make up the dead weight of a suspended platform. The rated capacity of the hoist(s) used must be greater than the maximum applied dead weight of the platform plus the rated live load(s) of the platform. Live load definitions can be found in OSHA regulations, the ASME A120.1 standard, CAL-OSHA title 8 Article 5, etc. as a minimum of 250 lbs. for each occupant of a suspended platform. The rated load capacity of the rigging equipment supporting the suspended load must be equal to or greater than the rated capacity of the hoist.

Example: A 1000 lb capacity parapet clamp can only be used with a hoist rated at 1000 lbs or less.

The dead weight of the platform comprises all items from the rigging point shackle down, including all items that are stored on the platform.

The following list includes common items to be considered:

- Plank platform or modular sections (side frames, U-frames, decks, pins, etc)
- Handrails
- Connectors
- End gates
- Stirrups and adapters
- Hoist(s)
- Wire rope(s) (Typically .17 to .19 lb /ft) (entire wire rope length(s))
- Wire winder(s)
- Power cord weight (Typically .35 lb /ft for 10/3 cord & .38 lb /ft for 10/4 cord) Maximum length suspended from or accumulated on platform
- Electric cord storage basket
- Transformers – Step down, Buck, Boost
- Electrical control boxes, remotes, junction power cords
- Face Rollers and attachment brackets
- Casters and wheels
- Special platform accessories – corner adapters, hinges, push out rollers, stabilization components, etc.
- Water Buckets
- Tools – Drills, lights, compressors, hoses, power cords, spray guns, etc.
- Fire extinguisher, bracket

This Technical Bulletin was prepared by members of the Scaffold & Access Industry Association SSFI Committee.

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

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- Construction materials being used to complete tasks @ hand – caulk, cleaning solutions, paint, blast media, replacement parts, etc.
- Independent lifelines if allowed to accumulate on platform decking (Typically .08 lbs /ft)
- Netting /screening
- Tarps, signs
- Overhead protection if used

Typical two hoist, evenly distributed load platforms, the Dead weight plus the Live load divided by two (2) equals the intended load to be seen per hoist $(DL + LL) / 2$.

For Multi-Hoist, non-symmetrical set ups and non-uniform loading on platforms, additional dead weight loads can be seen by one hoist compared to the other hoist(s), check with a qualified person to verify loading on hoists. Three-point suspension – the middle hoist sees (2x) times the load.

Different work processes can lead to a high accumulation of materials and associated weight onboard (ex. brick, blast media, etc.). The competent person must be aware of and make provisions for removing material, considering hoist ratings and location of debris.

Understand that overloading a hoist puts users at **risk** because intended safety factors are not available in case of unforeseen circumstances.

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