

How long should a ladder be? and How far from the wall?

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Dave from Ottawa writes : Is there a formula to determine the correct length of an extension ladder for a particular application? I suppose one should consider what is a safe overlap of the ladders, the length a ladder should extend beyond the point of contact where it touches the edge of the roof and the distance the ladder should be out from the wall at the base of the ladder. In my case there is a 21 ft vertical drop from the top of the eaves trough to the ground. How long of an extension ladder should I purchase? How far should the bottom of a ladder be away from the base of the wall? Formula for this? Thanks for the help

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Short Answer: In your case -- 24 feet long and 4 feet horizontally from the point of contact on the roof (so add the overhang of the roof if you want to measure to the wall).

There is a lot of information written on the side of extension ladders, most of it about safety. It is worth the read. The one table that I really like is the graphic often on extension ladders, that shows what should be vertical, and what should be horizontal for this ladder to be at the safely appropriate angle. You can actually site past this table to the corner of a house to get the two lines parallel, and the ladder properly placed.

An approximation of a safe position, also without calculation, is if the flat part of the step is horizontal. That is a bit hard to get precise but it gets you into a safe zone. Want calculation details:

Formulas:

A ladder should extend 3 feet above the roof if you are going to climb onto the roof. One foot is enough if you are just working on the ladder.

A ladder should be set one fourth of it's working height (point where it is touching the wall, or the edge of the roof) away from the wall. That's 75 degrees if you want to use a smart phone level.

Your shoulders should not reach out beyond the side rails, to keep your body weight within the ladder's footprint. If you have extended feet on the ladder that go beyond the side rails, you can actually lean out just that far, but no further. Keep your center of weight inside the feet of the ladder.

ADJUSTABLE FEET WITH A WIDER SPREAD

Probably the best adjustable feet that I have found for extension ladders, that also give the ladder a bit wider footing, is the ProBase Ladder Base. It has brackets that clamp onto the first two rungs, avoiding cutting or even drilling into your existing ladder, and with the touch of your foot you get the ladder to stand perfectly vertical on any terrain.

EXTENDING THE SUPPORT OF THE LADDER AT THE TOP

Many gadgets are on the market for standing the ladder off away from the wall or even bracking the ladder to the roof itself beyond the ladder rails. One of the simplest yet very effective are simply two metal tubes that fit into two of the hollow rungs. That will stand off of a wall but when sitting on the roof they really prevent sideways movement of the ladder at the top.

CLIMBING THE LADDER

Ideally, lift things like paint up to your working position with a rope, rather than climbing up the ladder with one of your hands full. Above all, keep your shoulders inside the footing to keep you weight well within the balance point of the ladder.

Keywords:

Ladders, Security, Safety

