



SCAFFOLD STABILITY

EXPLANATION

It is a common misconception that if a scaffold has a height to base ratio of 3:1 that it is stable and cannot fall over. This is false, if the scaffold is exposed to wind regardless of if it has containment or not, the 3:1 ratio is not sufficient and does not allow for the required maximum wind loading we need to design to.

This 3:1 rule was written into some codes of practice and standards produced in the 80's and 90's and has since been removed in the latest editions. While you may argue that a cyclonic wind event may only be 1:100 years, it can still happen as shown below.

Overall scaffold is transitioning to a more highly engineered product and there are ever increasing changes and requirements for full engineering design and for the scaffold to be designed to ultimate wind conditions. This is due to the many scaffolding collapses that are occurring from wind or poorly tied and braced scaffold. The single biggest issue is the codes and standards were mostly developed many years ago where containment was never a requirement and scaffolds are also being pushed to its limit's height wise.

EXAMPLE

Unfortunately, a 37-year-old man has died after a freak accident while watching a football game in Brisbane's north on the 25th of July 2021. Emergency services were called to the incident about 11.25am where scaffolding used by camera operators had collapsed on him, leaving him with serious head and chest injuries. The 37-year-old Bridgeman Downs man was rushed to Royal Brisbane and Women's Hospital in a critical condition about 1.15pm but was pronounced dead soon after arrival. (Note that this was not an Acrow scaffold).



WHAT TO DO

Unless the scaffold is in a full enclosed space and not exposed to wind, ensure you have consulted an engineer regarding any additional bracing requirements. If it is in an enclosed space, it is still recommended to have an engineer check and confirm the scaffold is adequate for the application regardless if you have a greater than 3:1 height to base ratio.

THINGS TO LOOK FOR

- Is the ground capacity adequate for the imposed leg loads?
- Is containment required.
- Will a banner be fitted?
- If you are strapping down the boards has this been allow for in the design?
- What is the purpose of the tower and what will it be used for?

COMMON MISCONCEPTIONS

- A raker brace into the ground will help. No, this is only beneficial for wind blowing in one direction. The raker does not have sufficient weight to resist the overturning in the other direction.
- If the scaffold does not have containment its ok to free stand. No, in some instances a bare bones scaffold can be worse than a contained scaffold as you may have more surface area because of the exposed decks and risks of items becoming dislodged and flying across the site.
- One thing that I do see on sites is the first deck of scaffold is not raker tied or ties until the first slab has been poured. It is critical that the first portion of scaffold is raker ties or designed with adequate buttress bays until a positive tie to the slab is installed.
- Raker ties are infinitely strong, this is not true. You cannot use a single 6m tube as a raker tie, over 4m this tube must be knee braced back into the scaffold and the rakers linked together and braced.

CONCLUSION

If a scaffold is free standing, seek advice from an engineer. This applies to the scaffold regardless of if it has containment or not.

Note that this advice and comments are general in nature and if in doubt ask!

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