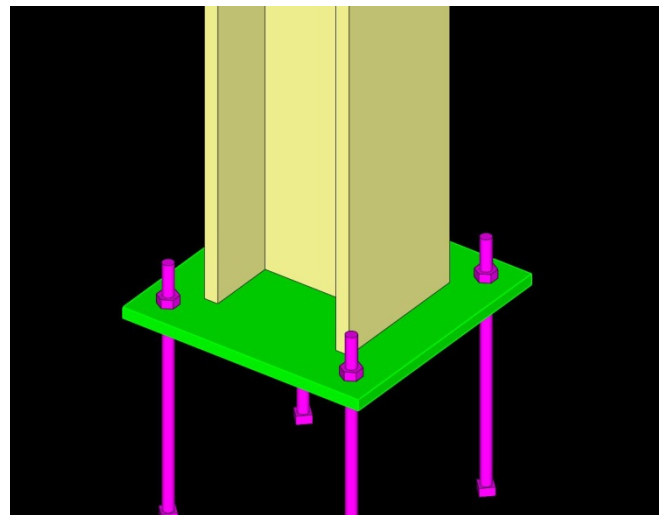


Safe & Practical Column Bases

Column bases can be the source of much frustration when it comes to safely erecting a structure. Far too often little or no consideration is given to temporary stability during installation. A good designer should consider erection forces and provide a base which has sufficient robustness to stand alone in a reasonable wind thus allowing safe and economical working on site. Small base plates with two holding down bolts or four bolts at close centres offer little resistance to overturning and have, in the past, caused serious injury and fatalities on sites.



Base Failure



Practical Base Detail

Key Points:-

1. Try to provide at least four M20 grade 8.8 bolts and a minimum 20 thk plates.
2. For most bases the largest stress the bolts will ever see is during erection so on larger structures M24 or M30 bolts will not look out of place.
3. Consider temporary loading present before grouting and provide suitably sized packs that can safely transfer the axial forces.
4. Check the base plate, bolts & weld to ensure they can resist temporary wind loads derived from a minimum site wind speed of $V_s = 18\text{m/s}$. Refer to Construction Industry Council Technical guidance note T20.002 for details.
5. Try to avoid 2 bolt bases on main columns as these can be extremely hard to erect without using two cranes or an expensive temporary tie system.
6. It is normal practice for extended base plates to be classed as pinned providing the plate thickness is not too thick (see SCI green book for information).
7. Position the bolt c/c at around 100mm greater than the column width.
8. Ensure that you have a reasonable embedment depth that can resist the tension forces and that the base itself can resist the overturning moment.
9. If a column can not safely free stand then put it on the Risk Assessment.

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