

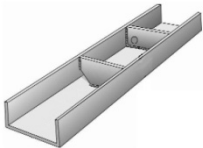
## QUESTION

*Why does material need vent and drain holes in order to galvanize?*

## ANSWER

For effective galvanizing, cleaning solutions and molten zinc must flow without undue resistance into, over, through, and out of the fabricated article. Proper ventilation is equally important allowing air to purge, thus permitting the object to be completely immersed into cleaning solutions and molten zinc.

Failure to provide for this free, unimpeded flow can result in damage to the fabricated material or increased risk of serious injury to galvanizing personnel. Improper drainage design results in poor appearance, bare spots, and excessive build-up of zinc.

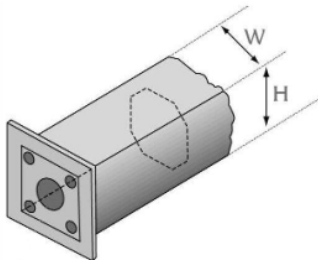
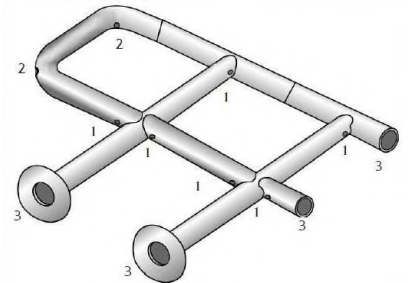


### Gusset Plates

- To ensure unimpeded flow of solutions, all stiffeners, gussets, and bracing should be cropped a minimum of  $\frac{3}{4}$ ".
- To facilitate drainage, additional  $\frac{1}{2}$ " holes should be placed in the web and end-plates within  $\frac{1}{4}$ " of the intersection of the two.

### Hand Rails

1. Each external vent hole must be as close to the welds as possible and must be 25% of the ID of the pipe, but not less than  $\frac{3}{8}$ " in diameter.
2. Vent holes in end sections or in similar sections must be at least  $\frac{1}{2}$ " in diameter.
3. Ends should be left completely open.

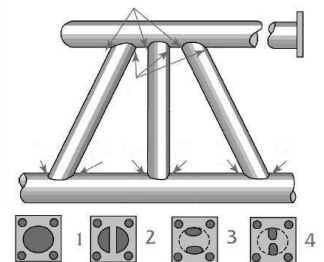


### Tube Sections

- $H + W = 24$ " or larger, the open area on each end should be at least 25% of the cross-sectional area of the tube.
- $H + W =$  less than 24" but greater than 16", the open area on each end should be at least 30% of the cross-sectional area of the tube.
- $H + W =$  less than 16" but greater than or equal to 8", the open area on each end should be at least 40% of the cross-sectional area of the tube.
- $H + W =$  under 8", leave completely open.

### Pipe Sections

- Vertical members should have two holes at each end  $180^\circ$  apart in line with horizontal members. Combined area of the two holes should be at least 30% of the inside diameter.
- The main horizontal should be completely open. An acceptable alternative would have at least 30% of cross-sectional area open as shown in 1, 2, 3, & 4.



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