

Arizona Mine Reclamation L.L.C.



Level 4V

Vertical Shaft

1/4" Material – No Footers

Level 4 protection is classified as the third highest level of re-enterable security to an open air and wildlife design in shaft or adit form. Level 4 protection offers McGard® Bolts placed on horizontal or top rails to aid in security over a standard bolt or lock while allowing easier access to biologists or responsible controlling agency. McGard® bolts are only placed on horizontal rails requiring removal for access as required as all other points are welded. **Construction method excludes all concrete footers.** A level 4 closure may also be upgrade to a Level 2 Arizona Mine Reclamation L.L.C. exclusive hidden lock design if required or requested.

Construction of shaft (cupola) will consist of rounded corner steel posts in 6 x 6 x 1/4 inch form set minimum 2 feet 6 inches in substrate and anchored with concrete (not to exceed 8 feet between posts – additional posts as needed). The corner posts are to be steel capped. Side Rails are 4" x 4" x 1/4" angle iron set at a minimum open of 5 3/4 inches to a maximum 8 inches apart on horizontal opening. Top will consist of the same design and requirements as horizontals with the addition of end caps welded to prevent entry or prying between header beam and top mounted angle iron (rails). Finished top rails and caps are to be flush with the header support rail (no protrusion). All side rails to be evenly spaced as required starting at the top and working down to bottom rail or sill. Overall construction dimensions will take into account a size to allow the top rails to be placed and evenly spaced at the required spacing so as not to create a smaller or larger than acceptable opening in top rails as determined in the overall design. When required additional 2-3 foot steel pinning may be placed into substrate to thereby add an additional depth of protection. Steel pins will extend thru bottom sill plate to aid in placement (welding).

- See Accompanying **Level 4V** - Vertical Shaft Draft •

Arizona Mine Reclamation L.L.C.



Level 4HA

Horizontal or Adit

1/4" Material – No Footers

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- Construction will consist of verticals utilizes minimum 3/8" thick 4" wide verticals to maximum 6" x 6" x 1/4" rounded steel posts anchored to floor and anchored at roof utilizing minimum 12" length and 1/2" diameter steel pins set and anchored to verticals on closed off side of mine with a welded anchor plate and gusset 1/4" thickness to prevent access to steel pins (minimum 1 steel pin for every 8 inches of anchor plate).

- All Pins epoxy set.

- Horizontal rail will consist of 4" x 4" x 1/4" angle iron with 2-1 1/2" stiffeners welded in place to mid-line vertical supports at a minimum spacing of 5 3/4" to a maximum of 8" spacing as requested. Horizontal spacing will start at top and be spaced evenly down to floor with any odd measurement of offset spacing being at floor level so as to utilize as much of the adit opening as possible for wildlife access.

- See Accompanying **Level 4HA** Horizontal or Adit Draft •