

Valmont Structures General Information: Installation & Maintenance - Valmont Poles & Related Equipment

**THESE FORMS SHOULD BE DISTRIBUTED TO: OWNERS
INSTALLATION PERSONNEL,
FUTURE MAINTENANCE PERSONNEL**

This information deals with structures supplied by Valmont along with certain safety issues. It is not a comprehensive description of how to install these structures. Competent installation contractors must be relied upon for practices and equipment that meet the demands of the conditions of each job location.

Valmont cannot be responsible for any damage that occurs during or after installation, or for any structure that has been modified by the purchaser or that is utilized in some way other than that in our application recommendations.

For information about the structural capability of these products or about installation practices, write to or call Valmont Industries, Inc. Highway #275 Valley, NE 68064-0358. Attention: Manager of Engineering, Pole Division. Telephone: (402) 359-2201.

INSTALLATION

TRAFFIC SIGNAL MAST ARMS
All mast arms will have the bottom of the arm identified by a tag welded to the bottom of the flange plate.

ASTM A325 BOLTS' Hardware
When galvanized A325 hardware is supplied, the nuts or other internal threads in plate components shall be field lubricated to prevent galling and achieve proper tension. (ASTM A325-00, ¶4.4)

TRANSFORMER BASES
In attaching a pole to a transformer base, when the pole base plate has slotted holes, place the connecting bolts on the largest possible bolt circle (i.e. the outer ends of the slots).

GROUNDING AND PROTECTION AGAINST ELECTRICAL SHOCK
The purchaser and installer must provide proper electrical grounding and warnings about any electrical hazards in accordance with applicable codes. Efforts shall be made in all breakaway supports that house electrical components to effectively reduce fire and electrical hazards posed after structure impact by an errant vehicle. Upon knockdown, the support/structure shall electrically disconnect as close to the concrete foundation as possible. (AASHTO Section 2.5.2, Breakaway Supports & Section 12.5.3 Additional Requirements)

ANCHOR BOLT FOUNDATIONS

- If anchorage hardware is furnished by others, the correct size and strength must be used.
- When leveling nuts are used, the bottom of the lowest leveling nuts shall not be more than 1" from the concrete surface. Large spaces between the pole base plate and the concrete can cause excessive stresses in the anchor bolts.
- Whenever anchor bolts are for poles with breakaway supports, care must be taken to meet the maximum 4" projection requirements of the AASHTO Specification (Section 12.5.3 Additional Requirements) and/or any other governing codes.

TRAFFIC SIGNAL SPAN WIRE SYSTEMS
Small decreases in sag (i.e. the vertical dimension from the lowest point of the suspension cable to the point where the cable is attached to the pole) can greatly increase the tension in the cable. Therefore, the sag should be no less than the value used in the design analysis. Tether cables should not be used unless they were included in the design analysis or unless they are designed to breakaway at moderate wind velocities. If used, tether cables should have very little tension (approximately 20 lbs.).

SIGN PLACEMENT ON TWO-CHORD SIGN STRUCTURES
Signs must be centered between the upper and lower beam members unless specifically designed otherwise. Locating signs off-center causes higher forces on one of the members and those forces must be included in the design analysis.

HINGED POLES
Wiring must pass through the wiring protection guide at the hinge to assure that the insulation will not be damaged during raising and lowering. The raising and lowering winch must be operated smoothly and the winch cable kept taut to avoid jolts, which could cause collapse of the shaft.

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CLIMBING SAFETY

These structures may have been fabricated with climbing and safety devices as specified, directed and approved by the owner or its representative (collectively "the owner"). It is the responsibility of the owner to ensure that the climber is qualified to climb these structures, and that he/she is aware of these climbing and safety devices and their proper use. The owner is also responsible to ensure that the owner's safety procedures are followed. It is essential that the CLIMBER BE ATTACHED TO THE STRUCTURE AT ALL TIMES WHILE WORKING OR AT REST ABOVE GROUND LEVEL. Applicable national standards (such as NESC Rule 420.J and K, OSHA, EIA, etc.) should be referenced for additional guidance. The owner shall take any necessary action(s) to prevent unauthorized persons from climbing the structure.

INSTALLATION/MAINTENANCE

VIBRATION CAUSED DAMAGES

Although rare, vibrations severe enough to cause damage can *occasionally* occur in and from structures of all types due to the installation environment. All the environmental conditions that lead to vibration are not predictable, and they are not present as known parameters to Valmont design engineers. Such vibration is believed to be more likely to occur when structures and/or components such as arms are installed without attaching the additional accessories, which the structures are designed to support. Therefore, such attached accessories, or devices equivalent in dampening characteristics, should be installed at the time of erection. The owner/user's maintenance program should include the observation for any excessive vibration and a continuous program for the examination of any structural damage or bolt loosening.

WEATHERING STEEL

Weathering steel is not a completely maintenance-free material. An on-going maintenance program must include their periodic inspection for any abnormal corrosion. Major suppliers of weathering steel (e.g. U.S. Steel, Bethlehem Steel) can supply data about the behavior of these materials in various environments. Their application recommendations should be followed for the best results. The most important of which is to avoid continuous exposure to moisture. Water, damp debris, or soil on weathering steel surfaces will cause accelerated corrosion. Excessive vegetation around the base can be harmful. A build-up of corrosion debris can adversely affect the inside of the pole base. Steel suppliers recommend painting closely fitting (faying) surfaces. The best time for painting is immediately prior to installation to minimize damage to the protective coating. Additional information may also be found on the Valmont Industries, Inc. website, www.valmont.com.

CORROSION PROTECTION

Structures that are to be stored prior to use should be kept well ventilated. Remove all packing and shipping materials to prevent finish deterioration. Water, including any caused by condensation inside the pole, should not accumulate at the base of the pole. Provide adequate drainage. All finishes are subject to gradual deterioration. Deterioration comes from many causes such as:

- corrosive elements in the atmosphere.
- salt spray from road surfaces or a marine environment.
- moisture from rainfall or condensation.

An on-going maintenance program must include periodic inspection for normal deterioration of the protective coating and for any indication of corrosion, which may be localized. Rehabilitation of the protective coating must be done to preserve the structural integrity of each assembly. Valmont's brochure "Protective Coatings for Steel" has more information on corrosion protection. *Contact:* Valmont Industries, Inc. (www.valmont.com)

FIELD PAINTING

The following information applies only to application of finish coats over Valmont's standard prime coats (Valmont Specification F73). The painter must check whether the prime coat is Valmont's standard or a special finish specified by the purchaser. The primed surface should be free of any contaminant such as grease, oil, and dirt. Chemically clean contaminated areas. Light sanding of the primed surface further enhances adhesion of the top coat, followed by a complete wipe down of the surface to remove all dust and contamination. Spot prime such areas as scratches and mars that have penetrated to the substrate. Top coats known to be compatible with Valmont's standard primers are: Tnemec 73 through 75 and 175 series two-component polyurethane enamels (or equal) over gray powder primer, and Sherwin-Williams F65 series oil alkyd enamel (or equal) over red liquid primer.

NOTE: All other generic top coats must be field tested prior to use.