




Highway Safety & Design Engineering Instructions (HSDEI)

Distribution: Highway Division, Director of Policy, Planning and Intermodal Development, Chief of Contract Administration, American Council of Engineering Companies of Vermont

Approved:  **Date:** 3/5/2015
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Subject: Square Tube Sign Posts

Administrative Information:

Effective Date: HSDEI 15 – 201 shall be effective from the date of approval.

Superseded HSDEI: HSDEI 15 – 201 shall supersede HSDEI 11 – 201.

Exceptions: Not applicable

Disposition of HSDEI Content: The content of HSDEI 15–201 will be incorporated into a future revision of the Highway Safety & Design Manual.

Purpose:

To standardize the sign posts specified on engineering plans to match those utilized by the Maintenance & Operations Bureau, ending the practice of optioning sign posts. Square tube sign posts will be the only sign post included in contract plans other than larger tubular steel and aluminum posts required for larger signs. Note that w-shaped sign posts are excluded from this guidance.

Technical Information:

For several years VTrans optioned flanged channel and square steel sign posts in our construction plans. Since that policy was incorporated the Maintenance & Operations Bureau has transitioned to using square steel sign posts exclusively.

The Maintenance & Operations Bureau transitioned to square steel posts for several reasons. First, square steel allows the work to be accomplished at ground level without the need of a ladder as anchors are driven into the ground and the posts slide into the anchor. A second advantage of using square steel posts is that winter repairs are easier; many times when a square post has been knocked down the anchor can be reused. Not having to drive posts into frozen ground saves time for the sign maintenance crews.

HSDEI 15 - 201

A major requirement for any sign post set up is the crash worthiness of the installation. FHWA Acceptance letter SS-126, linked below, identifies Perforated Square Steel Tube as acceptable for Test Level 3 applications of 2", 12 gauge Perforated Square Steel Posts in one or two post configurations.

http://safety.fhwa.dot.gov/roadway_dept/policy_guide/road_hardware/breakaway/pdf/ss126.pdf

Standard Drawing T-45 shows that Square Steel Posts shall be installed with anchors and not driven directly into the soil. The following chart can be used in sign post calculations, all Type A signs shall be designed with a 70 MPH wind speed.

	Dimensions	Wind Pressure 60 mph (psf)	Sv (ft ³)	Wind Pressure 70 mph (psf)	Sv (ft ³)	Maximum Bending Moment (lb.ft)
Flanged	2 lb/ft	14	32	19	23	448
Channel	2 lb/ft (2-post design)	14	56	19	41	784
Steel	3 lb/ft	14	101	19	74	1414
Square	1-3/4"	14	63	19	45	882
Steel	2" (12 ga)	14	105	19	80	1470
	2-1/2"	14	177	19	137	2478

Implementation:

The content of HSDEI 15 – 201 is to be implemented beginning immediately for all signs installed on state highways. This will include sign work orders, projects constructed via utilities permits and all Agency sponsored projects. For town highway projects, sign posts may still be optioned per the Town's request.

Transmitted Materials:

None.