



ONTARIO BUILDING CODE COMPLIANCE

This technical bulletin regards compliance of tubular shaft materials used for manufacture of Magnum MH313B, MH313BR, MH325B, MH325BR, MH425B, and MH431B with the Ontario Building Code. Section 4.2.3.8. of the Ontario Building Code (Government of Ontario, 2012) requires that all steel pipe piles used as deep foundations for permanent load-carrying support shall conform to either ASTM A252 or CSA G40.21.

ASTM A252 (ASTM Committee A01, 2007) establishes minimum yield and tensile strengths, minimum elongation, maximum phosphorous content, and permissible variations in weight and dimensions. ASTM A252 also establishes minimum criteria for testing and inspection.

Magnum uses custom shaft materials manufactured closely in accordance with ASTM

A513 (ASTM Committee A01, 2008) with additional requirements for strength and weldability. A513 tube is very similar to A252 pipe pile materials except that tolerances for diameter and wall thickness are more stringent for A513. These enhanced tolerances allow for tighter fitting and straighter helical pile couplings.

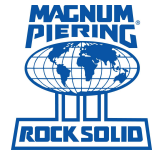
Similar to A252, ASTM A513 establishes criteria for strength, chemical composition, dimensions, and testing. A comparison between ASTM A513 and A252 is shown in Table 1. As can be seen in the table, the criteria for A513 are generally more stringent than A252.

In summary, the referenced Magnum helical pile shaft materials generally meet or exceed requirements of ASTM A252 in compliance with Ontario Building Code Section 4.2.3.8.

Table 1 Comparison Between ASTM A252 and A513

Criterion	ASTM A252 Grade 3	ASTM A513 Type 1a*
Min. Tensile Strength	66 ksi	80 ksi
Min. Yield Strength	45 ksi	65 ksi
Min. Elongation (1/4 in nominal wall)	18%	N.S.
Max. Phosphorous Content	0.050%	0.035%
Permissible Variation in Weight	+15% to -5%	N.S.
O.D. Tolerance	+/- 1%	+/- 0.3% to 0.4%
Wall Thickness	+any/-12.5%	+5% to -8%
Tensile Tests	1 per 200 lengths (7,000 ft)	1 per lot (heat)
Additional Tests	None	hardness, electric, pressure

*Magnum Piering, Inc. custom manufactured shaft material with 65 ksi min yield and 80 ksi min tensile strength.
N.S.= not specified



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Works Cited

ASTM Committee A01. (2007). *A252-07 Standard Specification for Welded and Seamless Steel Pipe Piles*. West Conshohook, PA: ASTM International.

ASTM Committee A01. (2008). *Standard Specification for Electric-Resistance-Welded Carbon and Alloy Steel Mechanical Tubing*. West Conshohockan, PA: ASTM International.

Government of Ontario. (2012). *O. Reg. 332/12: Building Code*. Toronto: Queen's Printer for Ontario.