

July 30, 2013

Luis Muñoz, Chicago Branch Manager
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Re: 11036 - Engineering Review and certification of Alsipercha.

I am an expert in the field of Fall Protection Engineering, and am currently a voting member of ANSI Z359 and vice-chair of CSA Z259, which are the technical committees on Fall Protection in Canada and the US. I chaired development of the CSA Z259.16 standard for "*Design of Active Fall Protection Systems*" which was the basis of ANSI Z359.6 "*Specifications and Design Requirements for Active Fall Protection Systems*", which serve as engineering standards for active Fall Protection systems in the US and Canada.

The Alsipercha is an Anchorage Connector device, and I am chairman of both the US and Canadian sub-committees (ANSI Z359.18 and CSA Z259.15) that apply to this type of device. Unfortunately, neither anchorage connector standard currently includes design and testing protocols applicable to this type of device. The Alsipercha is currently tested and certified as meeting the requirements of the EN795 standard in Europe, which does not have as rigorous requirements as ANSI Z359.6 and CSA Z259.16, although the requirements of OSHA 1926 Subpart M, Appendix C, and OSHA 1910.66 Appendix C are similar to the EN 795 requirements.

Because there are no applicable ANSI Z359 or CSA Z259 standards that adequately define test protocols for unique fall protection systems such as the Alsipercha, the only available North American certification is by a professional engineer in accordance with ANSI Z359.6 and CSA Z259.16 requirements.

I have been retained since June 2011, to verify compliance of the Alsipercha system to North American standards. I have developed a computer model to predict its behavior. I have assisted with design improvements of the Alsipercha and have witnessed testing conducted at the Alsina factory.

My engineering analysis concludes that the Alsipercha system meets OSHA 1926 Subpart M Appendix C, OSHA 1910.66 Appendix C, ANSI Z359.6 and CSA Z259.16 requirements.

My primary focus has been with analysis and testing of the Alsipercha pivoting post. I have reviewed existing test data but have not independently tested the strength of the base socket into reinforced concrete columns. Nonetheless, as a structural engineer who understands reinforced concrete design, I have reviewed the test reports provided by Alsina and details contained in the Alsipercha manual and they appear to be reasonable, appropriate, safe and agree with my independent structural calculations.

This letter certifies that I am a qualified fall protection engineer, meeting the requirements for a Qualified Person as defined by OSHA 1926 and 1910. My analysis and certification is in accordance with the requirements of ANSI Z359.6, CSA Z259.16, OSHA 1926 Subpart M Appendix C and OSHA 1910.66 Appendix C.

- The Alsipercha system provides fall arrest protection for one worker, weighing up to 310 lbs.
- The maximum arrest force seen by the worker during a fall will be less than 900 lb (4 kN).
- The maximum overturning torque applied to the socket at the base of the Alsipercha will be less than 7400 ft-lb (10 kN-m).
- The minimum required clearance varies according to the standard having jurisdiction over the work, in accordance with the following table:

Applicable Standard	Equivalent Rigid Mass Representing a 310 lb human	Required Clearance below the platform*	
		Standing Worker	Kneeling Worker
OSHA 1926 Subpart M Appendix C	220 lb (100 kg)	5.75 ft (1.75m)	8.25 ft (2.50m)
OSHA 1910.66 Appendix C	220 lb (100 kg)	5.75 ft (1.75m)	8.25 ft (2.50m)
ANSI Z359.6, Design of Active Fall Protection Systems	282 lb (128 kg)	6.5 ft (2.00m)	9 ft (2.75m)
CSA Z359.16, Design of Active Fall Protection Systems	310 lb (140 kg)	7.0 ft (2.15m)	9.5 ft (2.9m)

*add: 1.5 ft (0.45m) clearance for stretch harnesses (such as the Miller Duraflex)

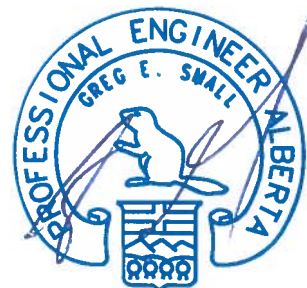
Swing Fall distance, as determined by a Competent Person according to site geometry

- The Alsipercha system and the socket it is inserted into must be inspected by the user to verify compliance with the manufacturer's instructions, before each use, and at least once a year by a Competent person.
- Safe access to the working location where a worker connects to the Alsipercha must be provided by the employer. This may include taglines to connect from a lower safe level prior to climbing to the working level.
- Before commencing work involving use of the Alsipercha, a rescue plan to promptly retrieve fallen workers who may be hanging from the Alsipercha system after a fall must be in-place and ready for immediate implementation.
- No modifications may be made to the Alsipercha system, including replacement of the self retracting device supplied with the system, without consultation and advice from a qualified fall protection engineer.
- This system is portable and relocatable, in accordance with the specifications and drawings supplied by Alsina Forms Co., Inc.
- The Alsipercha shall be used in strict accordance with the procedures provided by its manufacturer by workers who have received appropriate training in its use.

If you have any questions, please do not hesitate to contact me.



State of Arizona BTR Firm Registration 18043-0



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APEGA Permit to Practice P08787

Greg Small, M.Eng., P.Eng.
President – High Engineering Corp.