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STRENGTH TESTING OF POLYPROPYLENE SAFETY NETS BY EXPERIMENT

Mechanical Property Analysis after Dynamic Load
Testing of Polypropylene Safety Nets
when used as a Fall Arrest System

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2018

Engineering thesis prepared for Safety Nets NZ and Fall-Pac NZ to examine the mechanical properties of the various safety nets used in the safety net industry in New Zealand.

Based on the results of the experiments and research carried out for this report, as well as research and investigations carried out by reputable academic sources, it can be established that the system of safety net installation currently used by Safety Nets NZ and Fall-Pac NZ is exemplary within the safety net industry.

The recognised industry standard of BSN 1263 part 2 relates solely to installation criteria for safety nets of area greater than 35 sq.m. The bespoke systems developed by Safety Nets NZ and Fall-Pac NZ relating specifically to use of polypropylene safety nets on residential construction projects in New Zealand, which typically require deployment of nets of area less than 35.sq.m , have been tested extensively for the purpose of this report .

Both Safety Nets NZ and Fall-Pac NZ have adopted recognised industry standards as a basis for the development of their own robust installation standards and systems that relate specifically to the use of safety nets as primary means of soft fall through protection on residential construction projects in New Zealand. The results verify that when a fall arrest safety net system is installed in accordance with the standards and criteria developed by Safety Nets NZ Limited and Fall- Pac NZ Limited, as described and rigorously tested in this report, the system will successfully arrest the fall of a person, substantially minimizing the risk of injury or even death that can potentially occur as a result of the fall.

The Health and Safety at Work Act (2015) (The Act) places responsibilities on anyone involved with the workplace, defined as a Person Conducting a Business or Undertaking (PCBU), to ensure the health and safety of themselves and others. The Act places a duty to test on all upstream PCBU's to carry out the calculations, analysis, tests or examinations needed to confirm that the systems that they are using/providing to ensure the safety of the workforce are without health and safety risk so far as is reasonably practicable. Any safety net system provider engaged by an upstream PCBU should be able to demonstrate that the service/system offered is fit for its intended purpose and capable of performing as expected, without health and safety risk to the workforce. The testing and research carried out for this report confirms that both Safety Nets NZ Limited and Fall-Pac NZ Limited have tested their systems in accordance with requirements of The Act.