OH&S and Laser Safety

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Abstract

From a technical point of view, lasers are very interesting devices.

Their very existence is a marvel. From theoretical concept to a working model took almost forty five years. This is because at the theoretical stage, there was simply no technology around that could even conceive how they could be developed.

Decades of inventions in other areas such as physics, chemistry and electronics needed to be done so that various threads of research could be brought together to revisit the laser.

Lasers are now used in an incredible array of applications. From a developer's point of view, lasers are great to work with because they emit light that is coherent, monochromatic, uniquely directional and stable. This means that the emitted light waves are all in phase, of a single wavelength and emitted in a narrow beam with relatively large drift that occurs in other light sources.

They are the strongest source of light ever created by humans.

Because of the intense amount of light power that can be packaged into the narrow beam, they have also found an application in distance measuring instruments for surveying. Distance meters, in essence, measure the time for a transmitted signal to be returned. When normal light or infra-red light strikes an object, there is insufficient return (reflected) light for the receiving electronics to process the return signal. As the output from a laser can be millions of times stronger, the subsequent return light from the object is adequate for a distance to be computed.

Unfortunately, this intense man-made light can be detrimental to humans at certain levels. If viewed directly or through lenses for a period of time, damage to the eye may occur. At the extreme end, higher class lasers can even initiate skin cancer. Clearly, users of laser instruments should obtain at least basic awareness of the nature of lasers for safe, trouble free operation.

Procedures for the safe operation and use of lasers should be incorporated into all OH&S documents (where lasers are used). All levels of government that require employees to use lasers should have at least a policy statement regarding their use. This is an area where the Surveying industry is currently lagging behind.