School of Engineering and Information Technology UNSW Canberra

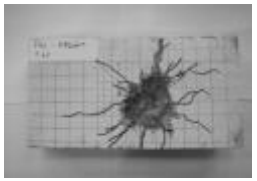
Impact and blast-resistant construction materials

A construction material for infrastructures to resist high-velocity impact and blast

NEW MATERIAL!

A new fibre reinforced high performance construction material with excellent impact and blast resistance capability is developed. Steel fiber and PVA fiber are used for the impact resistance. A large number of labs in lab environments using gas gun facilities and in military fields using real ammunitions demonstrate the excellent capability of the material to resist high velocity ballistic impact.

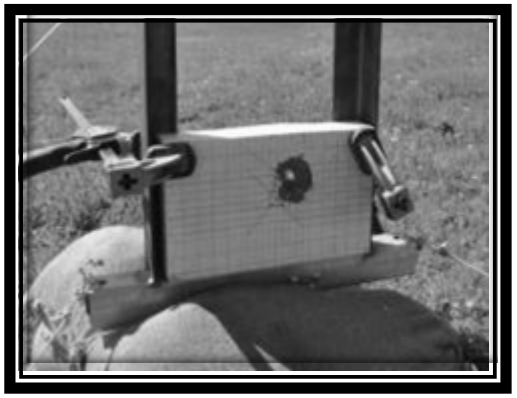
High strength concrete (C90)



FRC (2% steel fibres)

Steel-rebar panel

Damages under 7.62mm round impact



The Future….

New material panel – A promising construction material for infrastructures wuth high requirement of impact and blast resistance

BENEFITS?

- Use of less cement and high volume fly ash
- Significantly enhanced impact resistance than other construction materials.
- 2-3 times tensile strength of conventional concrete.
- High compressive strength up to 70 MPa.
- High ductility with an ultimate strain up to 100 times of that of conventional concrete
- Existence of multi-fine cracks rather than major crack
- Localised small damage without cracks around

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