

System features

Bi-Steel defence and security structures offer cost effective and rapidly built physical protection against today's threats from criminal and terrorist attack.

System features

Bi-Steel is a steel/concrete/steel composite construction system that offers unrivalled protection against explosions and criminal attack. It is a modular construction system which is slender in form and practical to construct making it cost effective compared with equivalent reinforced concrete or more exotic systems.

Performance in use - protection

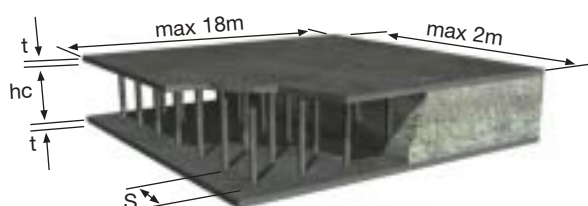
- Explosion resistance (detonation or deflagration)
- Resistance to projectiles and impact
- Plates contain the concrete and eliminate scabbing and spalling in an explosion
- Criminal/vandal resistance
- Fire containment
- Liquid, vapour, chemical, dust resistant
- Containment and protection of bio-hazards
- Protection against electro-magnetic pulse
- Shields against radiation
- Acoustic control
- Standard finishes mean that Bi-Steel structures are not easily identified.

Panel features

- Plate material used is very ductile - typically 30% more ductile than reinforcing steel
- Two continuous steel face plates provide double protection against breach
- Minimum surface area for corrosion and fire protection system
- Location of plates on outside provides optimum bending resistance
- Curved panels enable structural forms that are difficult to achieve using either steel or concrete alone
- Curved shell-type structures have immense strength.

Modular system for rapid and straightforward on-site construction

- Factory produced panels and offsite prefabrication minimises work on-site
- Large panel size minimises number of lifts on site
- Unfilled panels have modest weight so readily available cranes can be used
- Short build times reduce construction costs
- Accurate factory produced panels ensures ease of construction
- Unfilled panels act as permanent formwork minimising site work
- Facility for penetrations and attachments are built in by locally adjusting the bar connector locations
- Improved site safety by reducing temporary works.



$t = 5$ to 20mm
 $hc = 200$ to 700mm
 Bar diameter = 25mm
 Min $S = 200\text{mm}$
 Min $R = 1500\text{mm}$



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Design features

- Panels designed to suit application and loading
- Slender panels mean reduced construction depth and more usable space
- Integrity and reliability of penetration seals
- Ease of incorporating doors
- Panel thickness can be optimised to tie in with standard beam, column and hollow sections
- Stainless steel faceplates can be used for an architectural finish, corrosion resistance, wear resistance and hygienic surfaces
- Stainless steel faceplates can be connected to carbon manganese steel structures.

Minimum on-site welding

- When joining panels weld lengths are minimised relative to surface area
- No special weld preps or welding equipment needed on-site
- No need for pre-heat prior to welding
- Thin steel plates mean that the volume of weld metal needed to join panels is low minimising costs.



Contact details

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