
Dream Challenge
and Love
FIXON
Corrugated Steel Plate

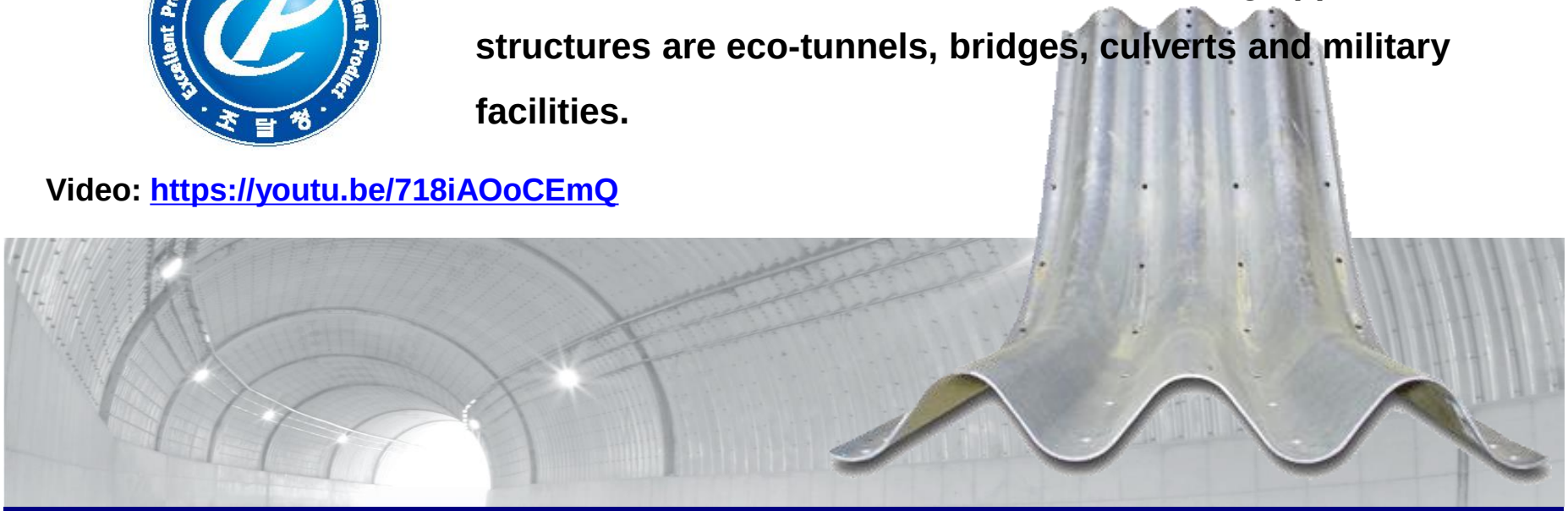
Corrugated Steel Plate (CSP)

Corrugated Steel Plate Structure

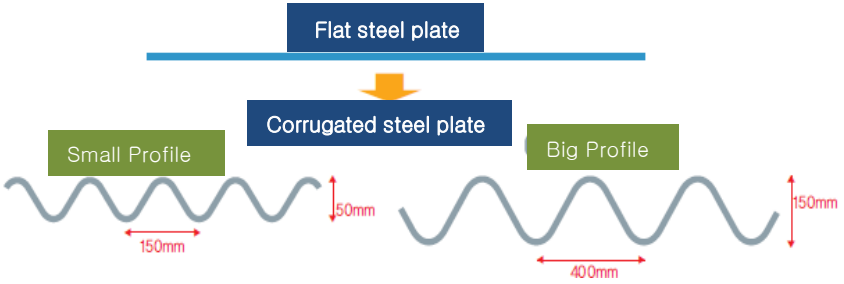
Selected as New Excellent Technology and Good Product by the Public Procurement Service of Korea

CSP structure is superior to concrete structure which is currently widely used for bridges and tunnels. The structure can be completed by assembling corrugated steel plates of 3 to 8mm thickness with bolts and nuts. Among applicable structures are eco-tunnels, bridges, culverts and military facilities.

Video: https://youtu.be/718iAOoCEmQ



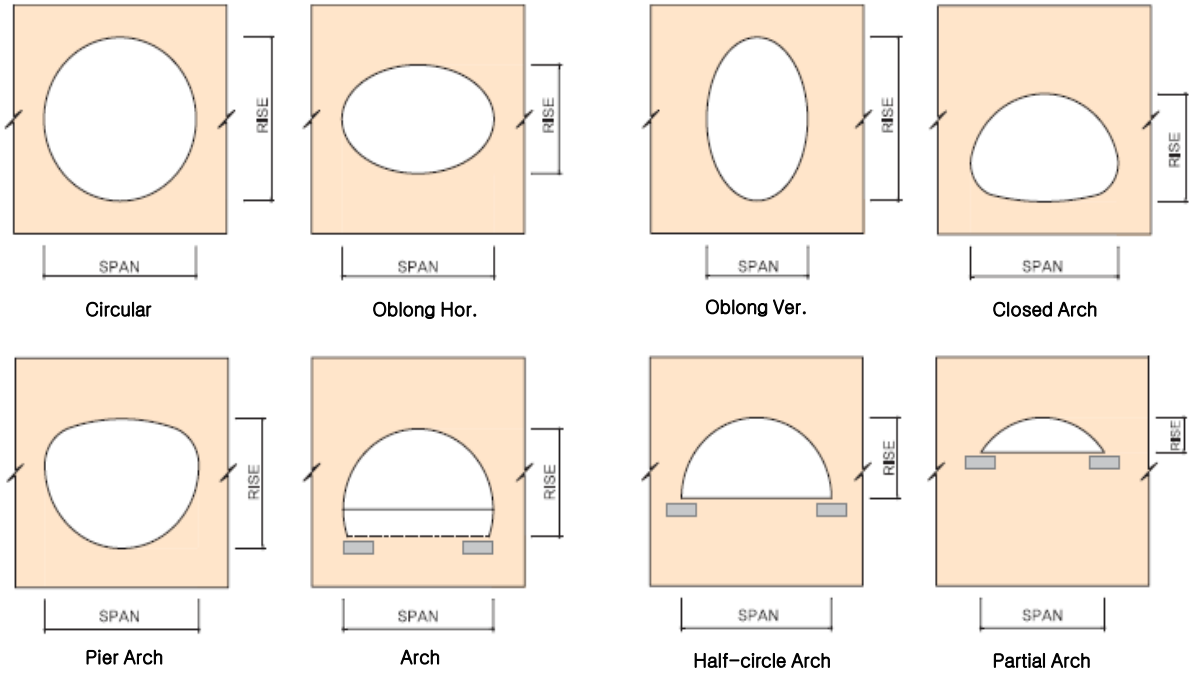
CSP



Up to 30 times strength increase by being corrugated



- **Ductile behavior structure resisting the external force by ring compression theory**
- **Composite behavior of soil and steel as ductile structure**



Diverse profiles

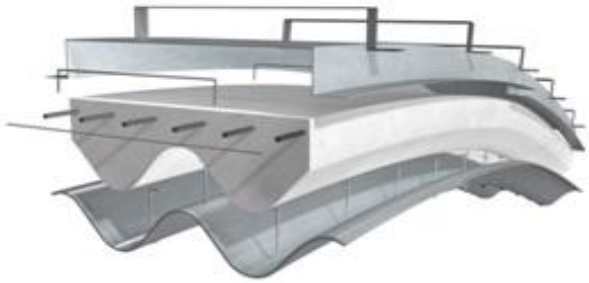
- **Applicable to almost all civil construction sites with its diverse profiles**
- **Culverts, Retaining Tank, Bridge, Military Facilities, etc.**

CSP

New Construction Tech.

No. 672 (CBS)

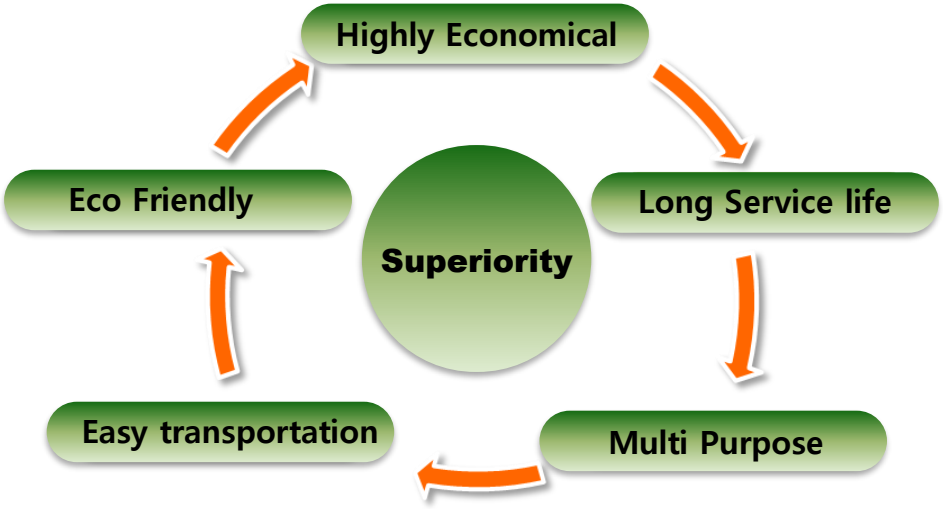
Composite Beam Structure



- **Steel composite CSP structure forming beam lining by installing concrete and re-bar on CSP**
- **Applying the optimal profile and sub materials for resistance against pressure and bending problem**
- **Enhancing maximum span from 16m to 32m and also applicable for high soil cover structures**
- **Plain surface of CBS steel form enables polyethylene sheet to cover the structure for waterproofing.**

		Span 8m	Span 10m	Span 12m	Span 14m	Span 16m
Max. Soil Cover	Without Reinforcement	16.0 m	12.2 m	10.0 m	7.7 m	6.0 m
	New Tech	49.7 m	38.9 m	32.0 m	26.8 m	23.2 m
	Remark	Increasing max. soil cover by 3.1~3.9 times with the CBS Tech.				

CSP



Highly Economical

- Short installation period: fast and easy assembly
- Less labor and equipment costs

Easy Transportation

- Easy to transport for light weight

Multi Purpose

- Eco-tunnel, culverts, retaining tank, bridges, military facilities etc.

Long Service life

- Long service life: zinc coating
- Less damage and easier maintenance

Eco Friendly

- Minimum construction waste: recycling steel plates

CSP

Easy Transportation



Easy and Fast Construction: Bolt Assembly

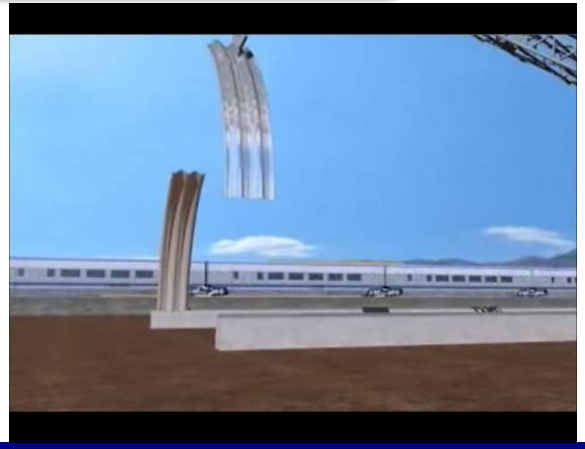


Easy Handling: light weight



No Traffic Interruption





CSP

Clean and fast solution to reinforce old bridge





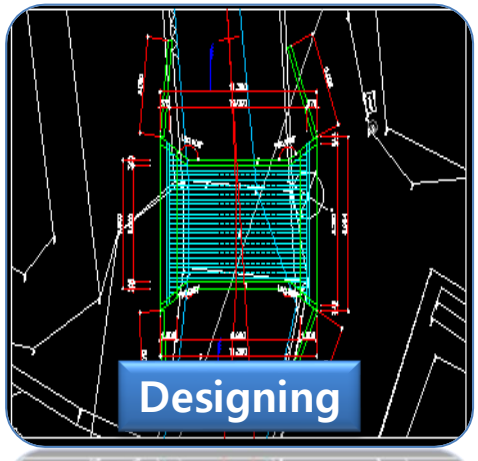
Recyclable Material: Steel
Minimum construction wastes

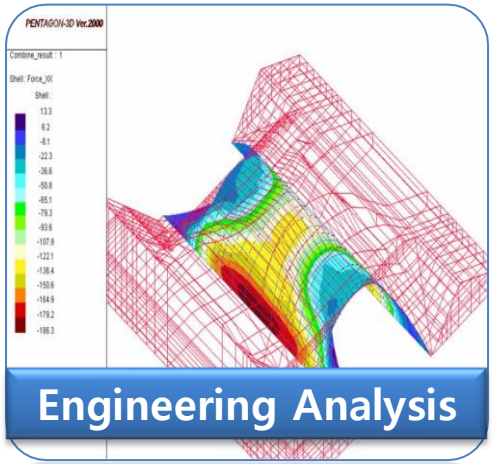




CSP Whole Process













CSP

Production Process



Corrugation Forming



Punching



Curving



Adjusting

CSP

Installation



Excavation



Footing



Plate Inspection



Assembly



Waterproofing



Backfilling



Compaction

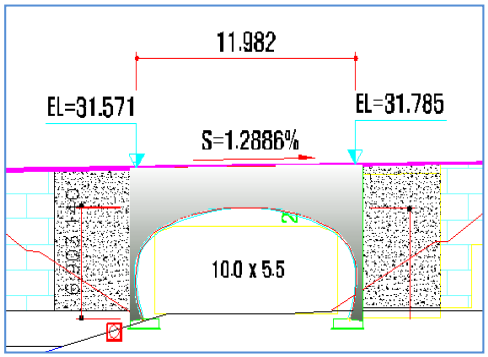
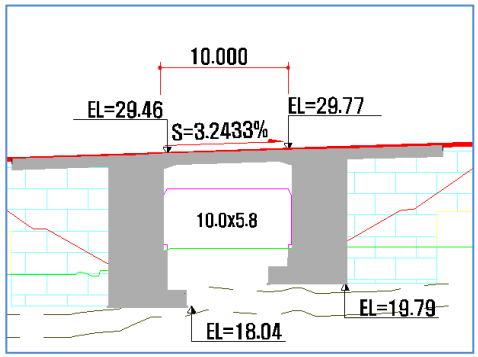
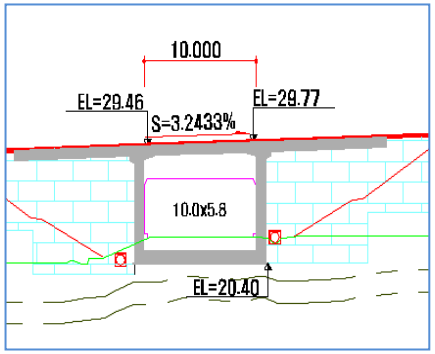


Completion

Small Bridge

Method	CS Plate	R/C Bridge	Box culvert
Profile			
Size	Span : 15.5m / Length : 35.5m	Span : 15m / Length : 35.5m	Span : 15m /Length : 35.5m
Features	▶**High durability: galvanization (900g/㎡) - over 100 years** ▶**Anti-seismic Design** ▶**No detouring road required** ▶**Suitable for various settlements** ▶**100% recyclable** ▶**Year-round construction**	▶**High durability: over 100 years** ▶**Seismic damage inevitable** ▶**Detouring road required** ▶**Seasonal limitation for construction** ▶**Wastes from destruction**	▶**Easy installation** ▶**Seismic damage inevitable** ▶**Year-round construction** ▶**Limited site application** ▶**Heavy machinery required** ▶**Wastes from destruction**
Cost	12,500$/m	15,000$/m	14,500$/m
Period	20days(Half arch)	40days	25days

Passage

Method	CS Plate	R/C Bridge	Box culvert
Profile			
Size	Width : 10m / Length : 30m	Width: 10m / Length : 30m	Width: 10m / Length: 30m
Features	▶ **High durability: galvanization (900g/㎡) - over 100 years** ▶ **Anti-seismic Design** ▶ **No detouring road required** ▶ **Suitable for various settlements** ▶ **100% recyclable** ▶ **Year-round construction**	▶ **High durability: over 100 years** ▶ **Seismic damage inevitable** ▶ **Detouring road required** ▶ **Seasonal limitation for construction** ▶ **Wastes from destruction**	▶ **Easy installation** ▶ **Seismic damage inevitable** ▶ **Year-round construction** ▶ **Limited site application** ▶ **Heavy machinery required** ▶ **Wastes from destruction** ▶ **Size limitation** ▶ **Extra work for waterproof**
Cost	8,700$/m	11,200$/m	10,500$/m
Period	18days(box)	38days	23days

Underground Retaining Tank

Method	CS Plate	Cast in place	PC box
Profile			
Size	100mt	100mt	100mt
Features	▶ **High durability: galvanization (900g/㎡) - over 100 years** ▶ **Easy to increase the capacity** ▶ **Fast installation** ▶ **Year-round Installable** ▶ **100% recyclable** ▶ **Customized waterproof work**	▶ **High durability: over 100 years** ▶ **Seismic damage inevitable** ▶ **Detouring road required** ▶ **Seasonal limitation for construction** ▶ **Wastes from destruction** ▶ **Normal waterproof**	▶ **Easy installation** ▶ **Seismic damage inevitable** ▶ **Year-round construction** ▶ **Limited site application** ▶ **Heavy machinery required** ▶ **Wastes from destruction** ▶ **Extra work for waterproof**
Cost	32,000$	47,600$	63,500$
Period	15dyas	35days	25days

Underground Facility

Method	CS Plate	Cast in place	PC box
Profile			
Size	10m(S)×6m(H) × 1Km(L)	10m(S)×5m(H) × 1Km(L)	10m(S)×5m(H) × 1Km(L)
Features	▶High durability: galvanization (900g/㎡) - over 100 years ▶Anti-seismic Design ▶No detouring road required ▶100% recyclable ▶Year-round construction ▶Easy to increase length ▶Fast installation ▶Customized waterproof	▶High durability: over 100 years ▶Seismic damage inevitable ▶Detouring road required ▶Seasonal limitation for construction ▶Wastes from destruction ▶Normal waterproof	▶Easy installation ▶Seismic damage inevitable ▶Year-round construction ▶Limited site application ▶Heavy machinery required ▶Wastes from destruction ▶Extra work for waterproof
Cost	11.5 million $	14.4 million $	18.7 million $
Period	95days	180days	105days

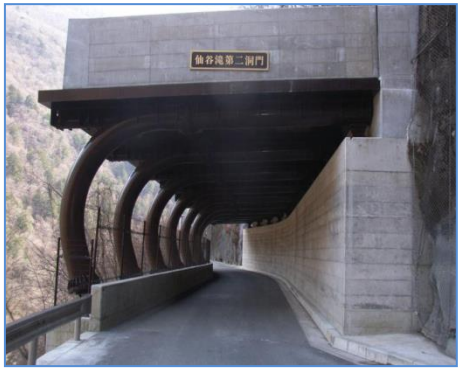
Military Facility (Powder Magazine)

Method	CS Plate (On the ground)	Concrete (On the ground)	Concrete (underground)
Profile			
Size	3m(S)×3m(H) × 10m(L)	6m(S)×3m(H) × 10m(L)	3m(S)×3m(H) × 10m(L)
Features	▶ **High durability: galvanization (900g/㎡) - over 100 years** ▶ **Anti-explosions & Anti-seismic: ductile structure** ▶ **Easy to handle surface condensation** ▶ **Easy and fast installation** ▶ **100% recyclable**	▶ **Possible chain explosion by attack** ▶ **Easy to handle surface condensation** ▶ **Seasonal limitation for construction** ▶ **Wastes from destruction** ▶ **Normal waterproof**	▶ **Low exposure risk** ▶ **High construction cost: underground construction** ▶ **Possible chain explosion by attack** ▶ **Seasonal limitation for construction** ▶ **Wastes from destruction** ▶ **Difficult to handle surface condensation**
Cost	36,000$/m	11,500$/m	14,500$/m
Period	7days	30days	75days

Noise Tunnel

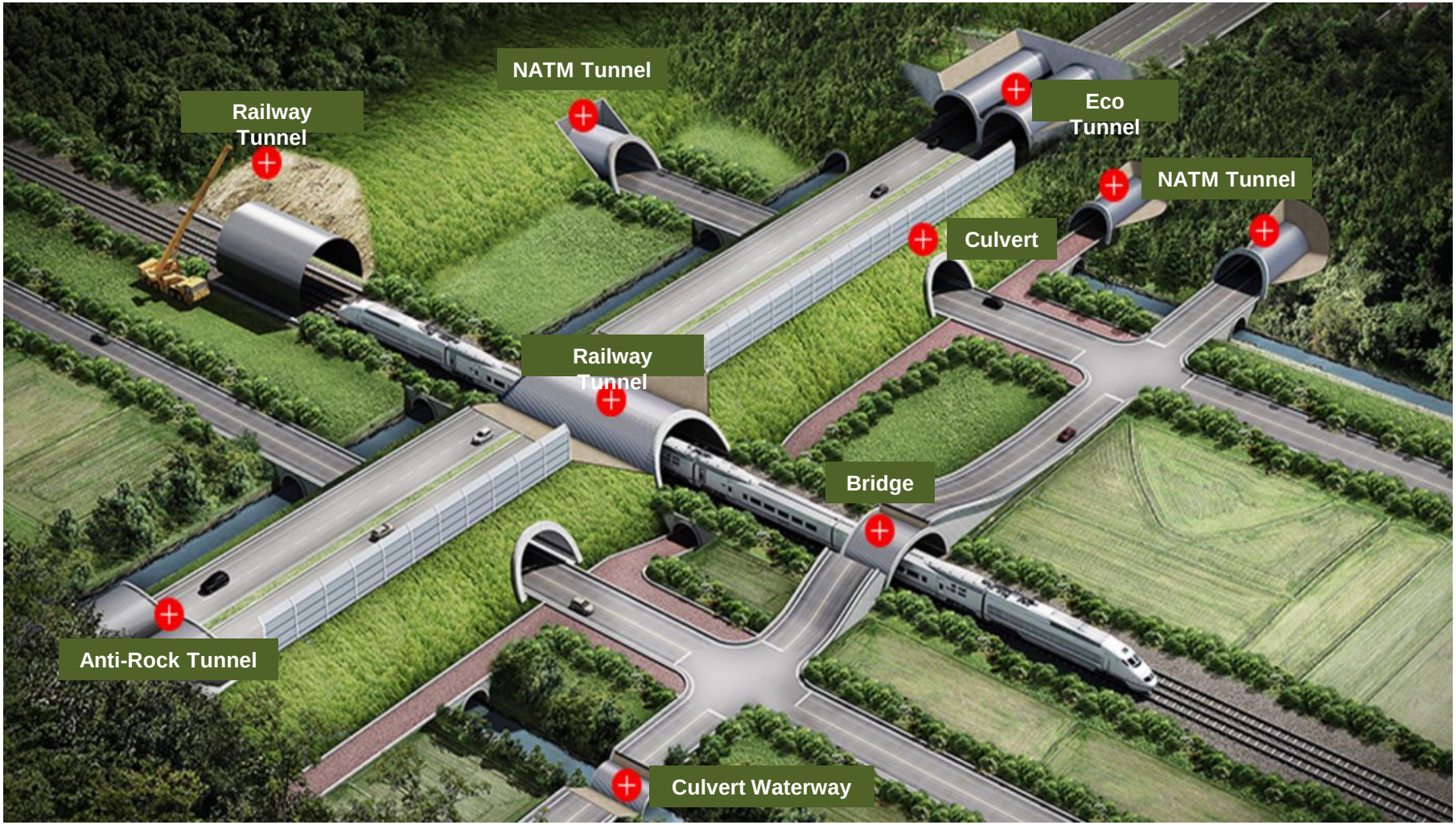
Method	CS Plate	H Beam	PC Concrete
Profile			
Size	13m(S)×6m(H) × 20m(L)	13m(S)×7m(H) × 20m(L)	13m(S)×7m(H) × 20m(L)
Features	▶**Strong resistance to wind and snow load** ▶**Natural lighted** ▶**Fast installation** ▶**Wide span (up to 28m)** ▶**High efficiency: Diffused reflection**	▶**Weak to wind and snow load** ▶**Natural lighted** ▶**Long construction time: Welded installation** ▶**Roof contamination with deposits on top**	▶**Strong resistance to wind and snow load** ▶**Artificial light required** ▶**heavy machinery required** ▶**Extra waterproof work for joints** ▶**Limited span size**
Cost	9,500$/m	11,500$/m	13,000$/m
Period	20days	60days	50days

Anti-Rock Tunnel

Method	CS Plate	Concrete	Iron Pipe
Profile			
Size	8m(S)×5m(H) × 20m(L)	8m(S)×5m(H) × 20m(L)	6m(S)×4m(H) × 20m(L)
Features	▶**High durability: galvanization (900g/㎡) - over 100 years** ▶**Anti-seismic Design** ▶**No detouring road required** ▶**100% recyclable** ▶**Year-round construction** ▶**Easy to increase length** ▶**Fast installation**	▶**Low Durability for accumulated fatigue from falling rock as a rigid structure** ▶**Possible seismic damage** ▶**100% industrial waste**	▶**Anti-seismic design** ▶**Iron material recyclable** ▶**Excessive construction cost**
Cost	9,500$/m	13,000$/m	16,000$/m
Period	30days	60days	75days

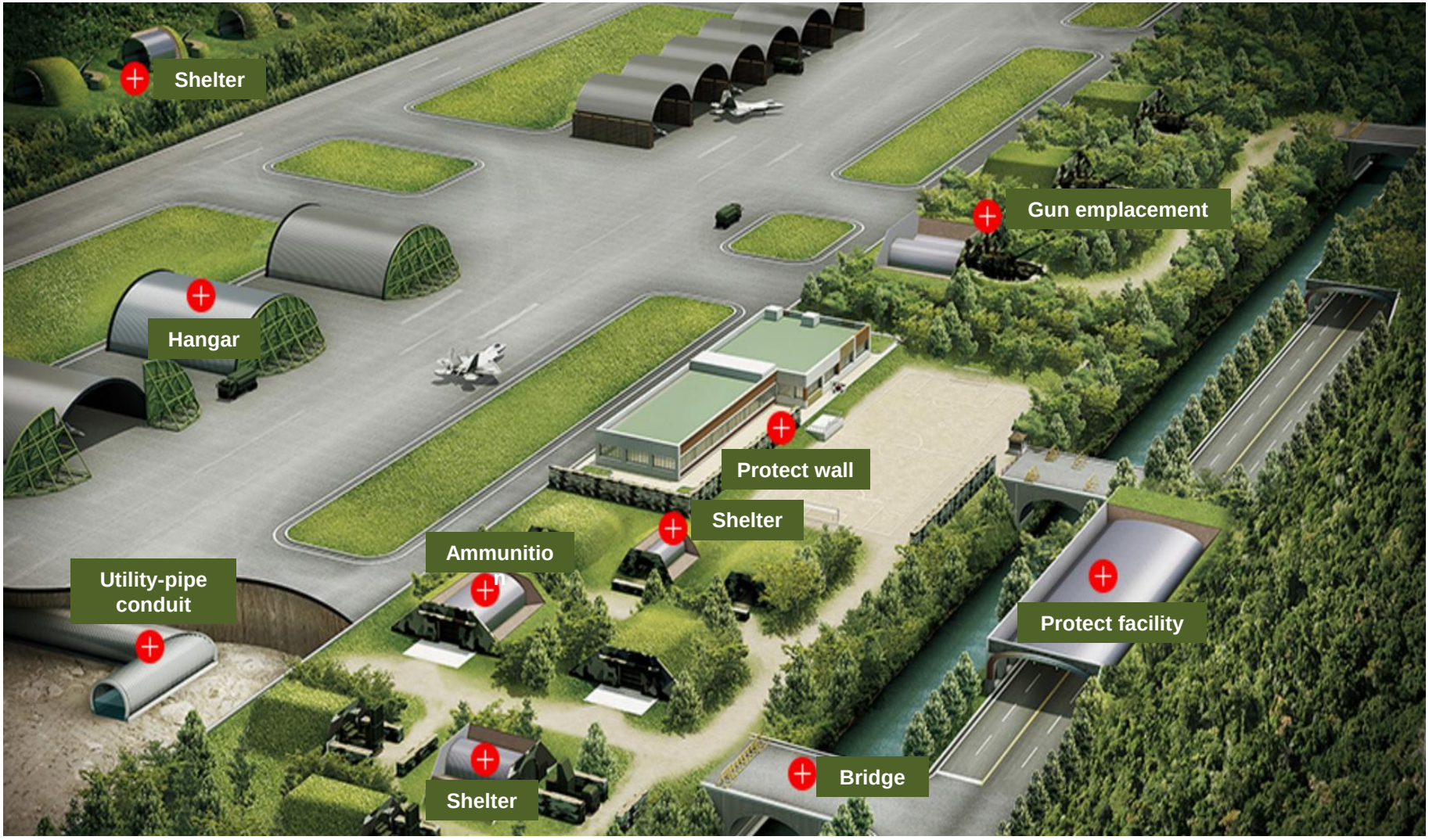
CS Plate

Highway Construction



CS Plate

Military Facility



CS Plate

Culvert Passage



Width： 7.5m **Steel thickness： 6mm**

CS Plate

Culvert Passage



Width: 7.5m **Steel thickness : 5mm**

CS Plate

Culvert Waterway



Width：6.6m **Steel thickness：6mm**

CS Plate

Culvert Waterway



Width: 4.045m **Steel thickness: 6mm**

CS Plate

Culvert Waterway



Width : 4.67m **Steel thickness : 3.2mm**

CS Plate

Bridge



Width ： 14m **Steel thickness： 7mm**

CS Plate

Bridge



Width ： 24m **Steel thickness： 8mm** **Reinforcement： CBS**

CS Plate

Bridge



Width : 13m * 3 arches Steel thickness : 7mm

CS Plate

Bridge



Width : 23m **Steel thickness : 8mm** **Reinforcement : CBS**

CS Plate

Mine(cut & cover)



Width : 14m **Steel thickness : 6mm**

CS Plate

Eco Tunnel for Wild Animal



Width : 21m Steel Thickness : 8mm Reinforcement : CBS

CS Plate

Eco Tunnel for Wild Animal



Width : 23.5m Steel Thickness : 8mm Reinforcement : CBS

CS Plate

Eco Tunnel for Wild Animal



Width：23m　Steel Thickness：8mm　Reinforcement：CBS

CS Plate

Anti Rock Falling Prevention Tunnel



Width: 10m **Steel thickness： 8mm**

CS Plate

Railway Tunnel



Width: 10m **Steel thickness: 8mm**

CS Plate

Rainwater Retaining Tank



Width： 8m **Steel thickness： 7mm**

CS Plate

Rainwater Retaining Tank



Width: 3.5m **Steel thickness: 4mm**

CS Plate

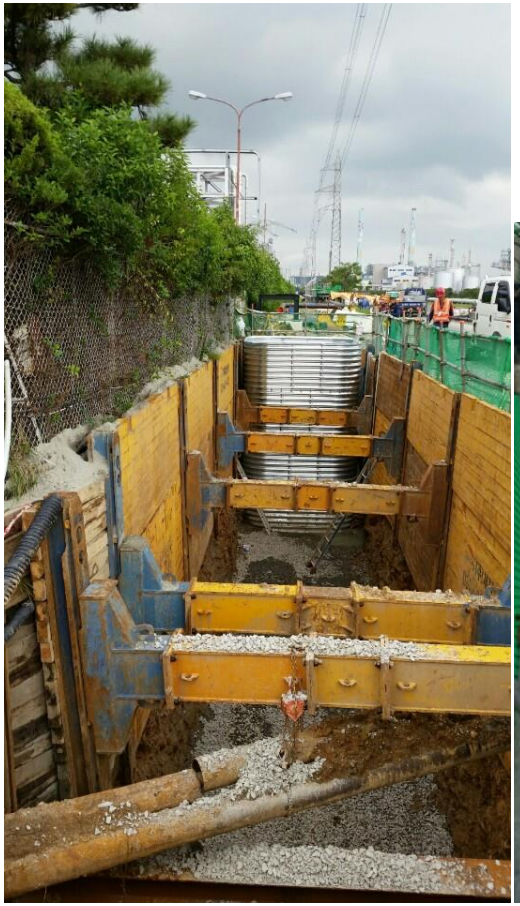
Underground Utility Tunnel



Width: 8m **Steel thickness: 6mm**

CS Plate

Refurbishing Existing Pipe





Width: 3.187m **Steel thickness: 6mm**

CS Plate

Artificial Fishing Banks



Steel thickness： 6mm

CS Plate

Military Facility (Bomb Shelter)



Width : 7m **Steel thickness: 7mm**

CS Plate

Military Facility (Hangar)



Width: 23m **Steel thickness: 8mm** **Reinforcement: CBS**

CS Plate

- Military Facility (Armory)



Width: 20m **Steel thickness: 8mm** **Reinforcement: CBS**

CS Plate

Military Facility (Bomb Shelter)



Width: 7.124m **Steel thickness: 3.2mm**

CS Plate

Building Exterior



Width: 11m **Steel thickness: 3.2mm**

CS Plate

Building (Sport Stadium)



Width: 22m **Steel thickness: 7mm**

CS Plate

Noise Tunnel



Width: 20m **Steel thickness: 6mm**

CS Plate

Noise Tunnel in Park Area



Width: 22m **Steel thickness: 8mm** **Reinforcement: CBS**

CS Plate

Noise Tunnel for Downtown Area





Width: 27.5m **Steel thickness: 8mm** **Reinforcement: CBS**

CS Plate

Noise Tunnel for Downtown Area



Width: 28m **Steel thickness: 8mm**

CS Plate

Overseas Project (Taiwan)



Width: 13m **Steel thickness: 7mm**

CS Plate

Overseas Project (India-Mumbai Airport)



Width: 3.2m **Steel thickness: 6mm**

CS Plate

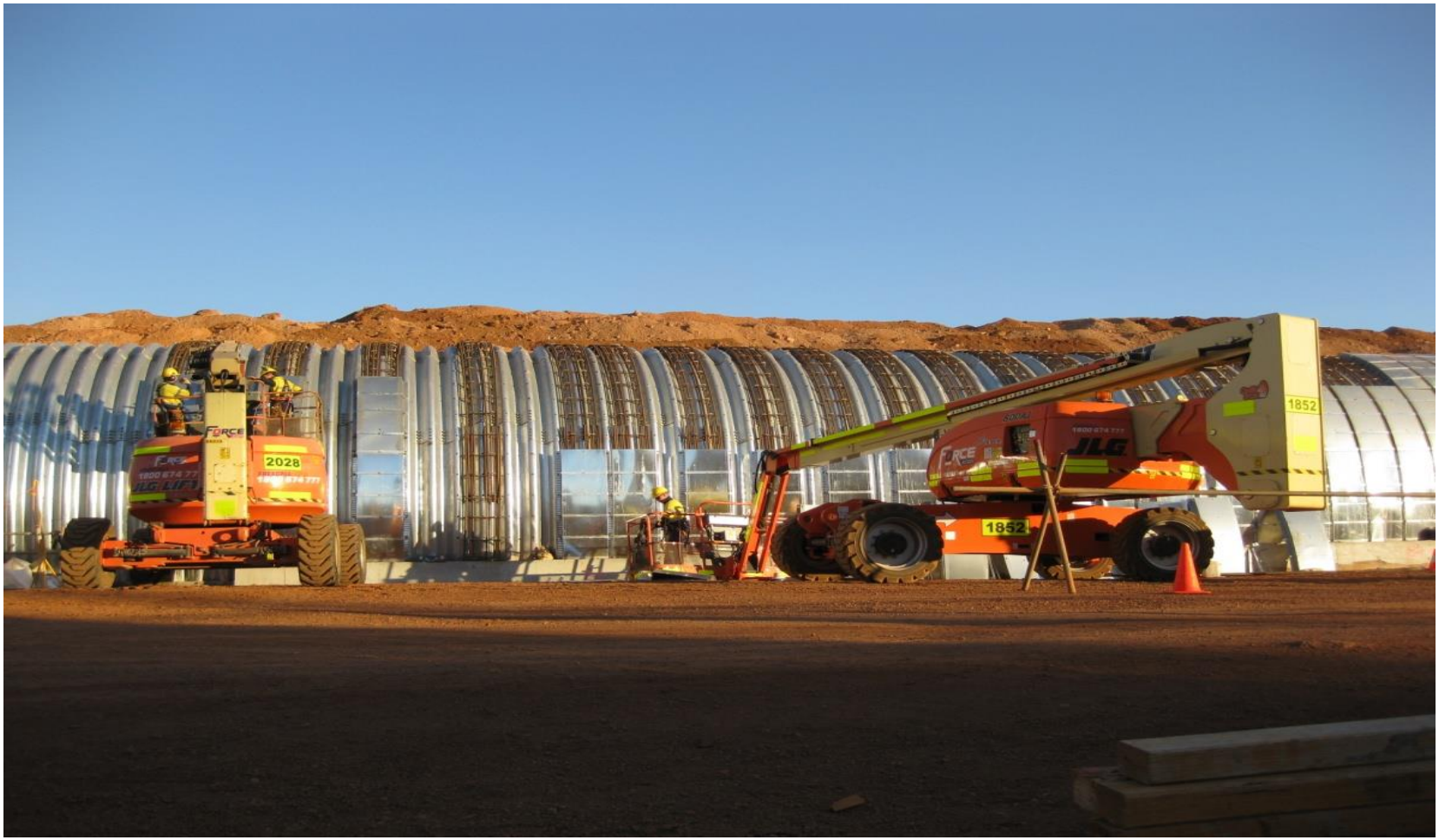
Overseas Project (Iran)



Width: 18m **Steel Thickness: 8mm** **Reinforcement: CBS**

CS Plate

Overseas Project (Australia)



Width: 16.5m **Steel thickness: 8mm** **Reinforcement: CBS**

CS Plate

Overseas Project (Poland)



Width： 15m　　Steel thickness： 7mm

CS Plate

Overseas Project (China)



Width: 10m **Steel thickness: 8mm** **Reinforcement: CBS**

Young Kim **Vice President**

MP +82-10-2334-2518

E-mail youngkim@fixoninc.com

Skype avook1

David Jeong **Director**

MP +82-10-9058-0416

E-mail jongmin.jeong@fixoninc.com

Skype marenight31

Kwangjun Yun **Manager**

MP +82-10-6602-7935

E-mail ykj9818@fixoninc.com

Skype ykj101879



Thank you

FIXON