

KEY PILE

DCP announce a KEY development in the evolution of steel sheet piles

KEY PILE

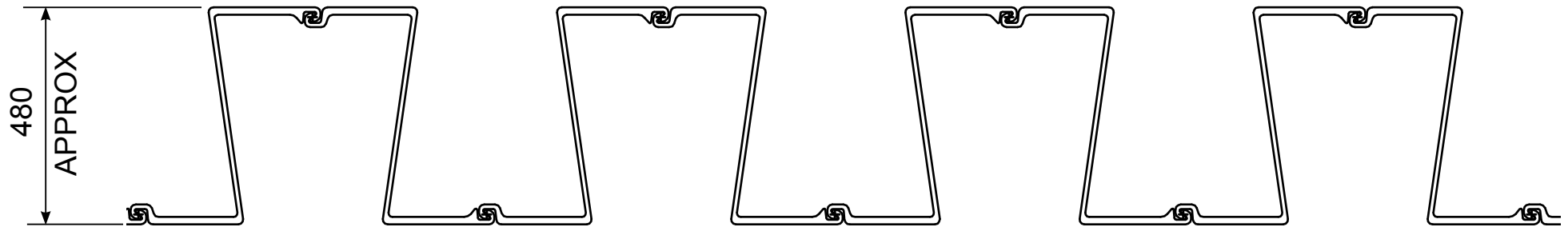
Dawson Key Piles are produced by re-working standard sheet pile profiles. By this process of “compressing” profiles into nearly half of their “as rolled” width it is possible to almost double the modulus per metre but without increase in depth of profile.

The unique dovetail geometry that results, gives the ability to slot in a range of pre-manufactured items including concrete or rubber cladding and tie bar anchorages.

A range of configurations are available for high strength marine applications, basement design where steel efficiency can be traded with basement size gains and highly efficient combi-wall configurations where Key Piles are mixed with combinations of standard AZ piles.

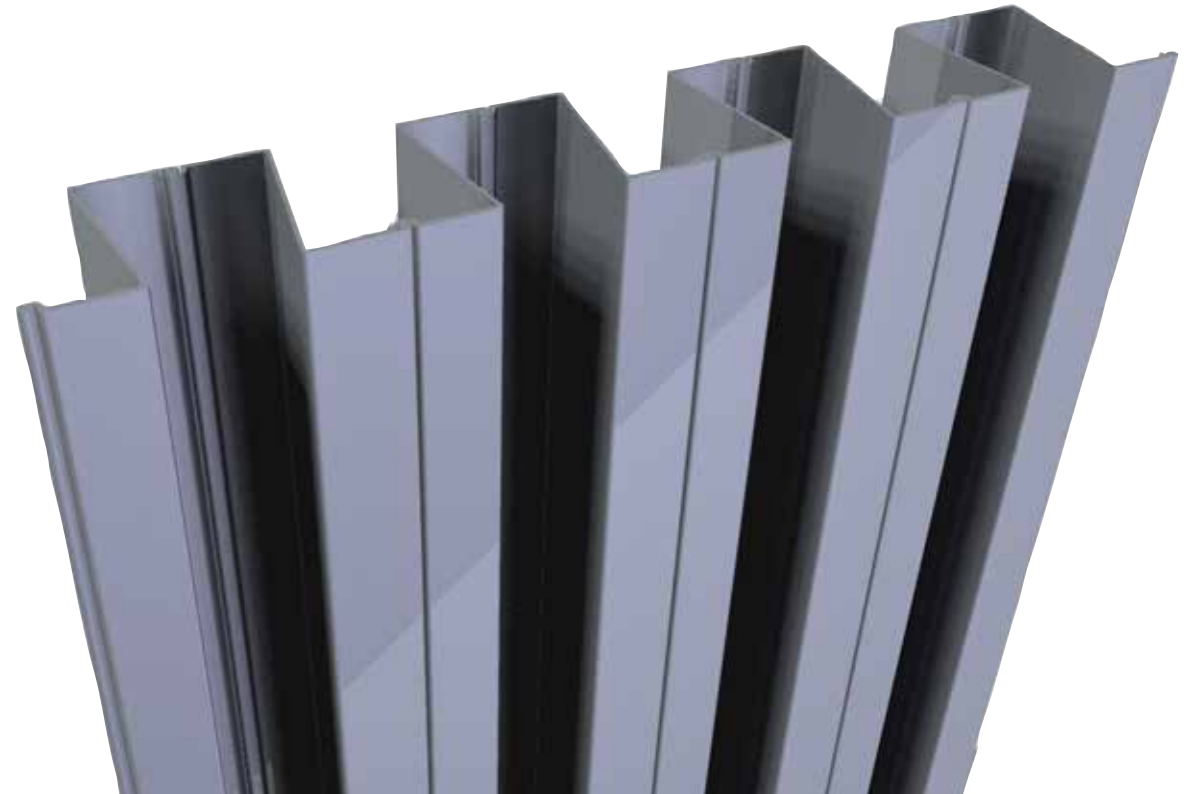
The Key Pile can be installed with a wide range of piling techniques, including silent and vibrationless.

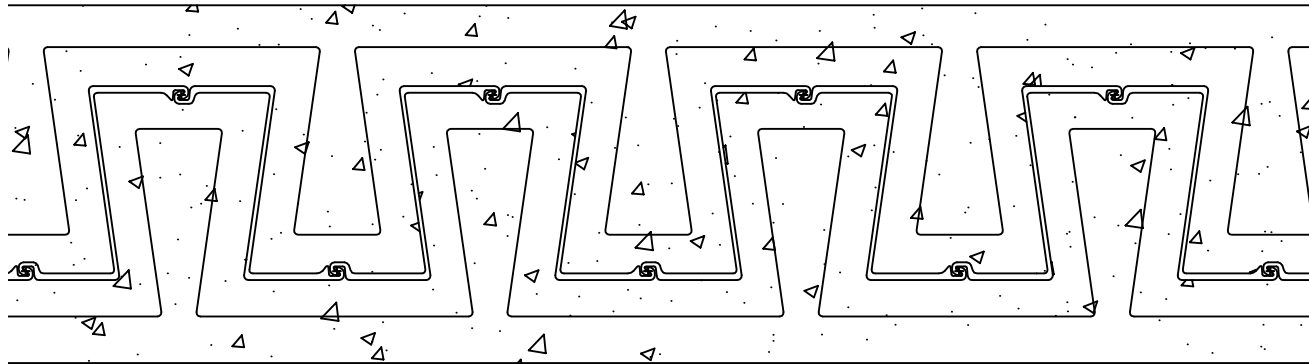
"KEY" PILES $Z = 10,000\text{cm}^3/\text{m}$



KEY PILE HIGH MOD SHEET PILE WALL

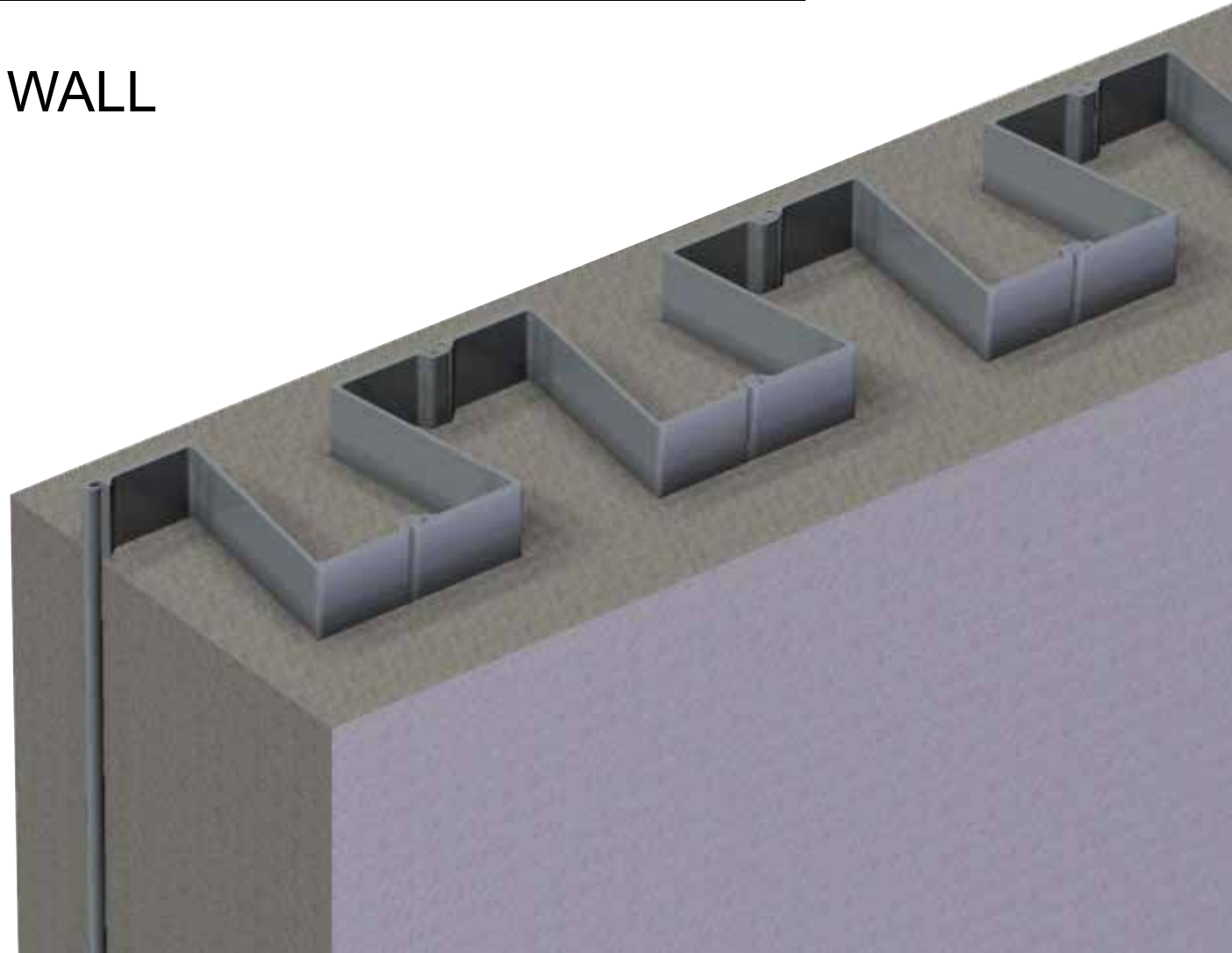
- $Z = 9000\text{cm}^3/\text{m}$ approx.
- Wall thickness = 500mm approx.
- Installation tolerance $\pm 50\text{mm}$
- Silent vibrationless installation
- Welded interlocks - watertight





KEY PILE COMPOSITE WALL

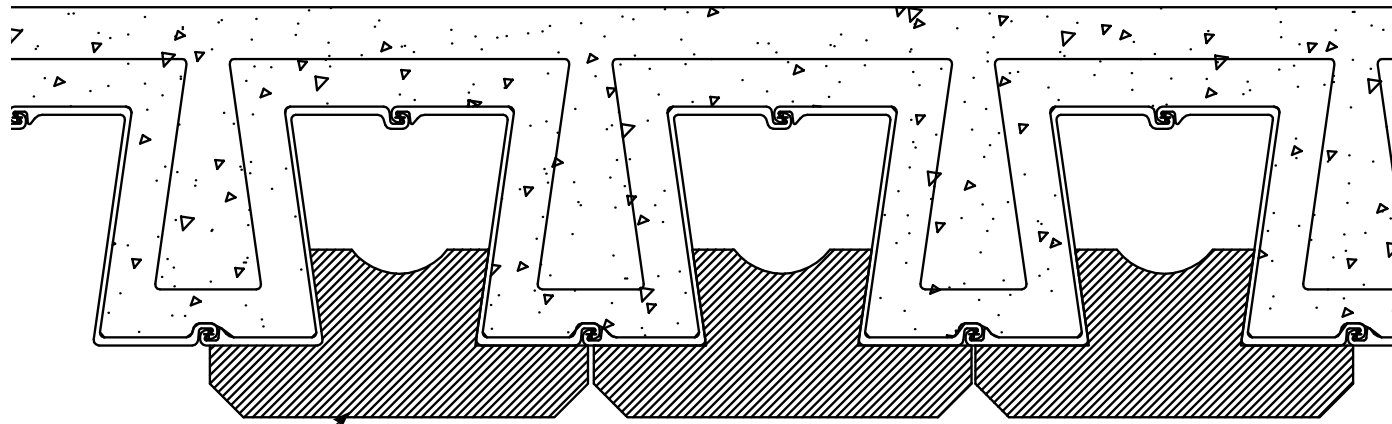
- Concrete cast onto Key Piles provides:-
- Protection from corrosion and abrasion
- Fire protection
- Water proofing
- Architectural finishes
- Pile stiffening
- Good hydraulic flow properties.
(e.g. river bridge pier)



CORROSION / ABRASION

This image shows how steel sheet piles in a sea water corrosive and abrasive atmosphere, can be destroyed in 30 years in a temperate climate. In a tropical climate this may fall to 10 years service life.



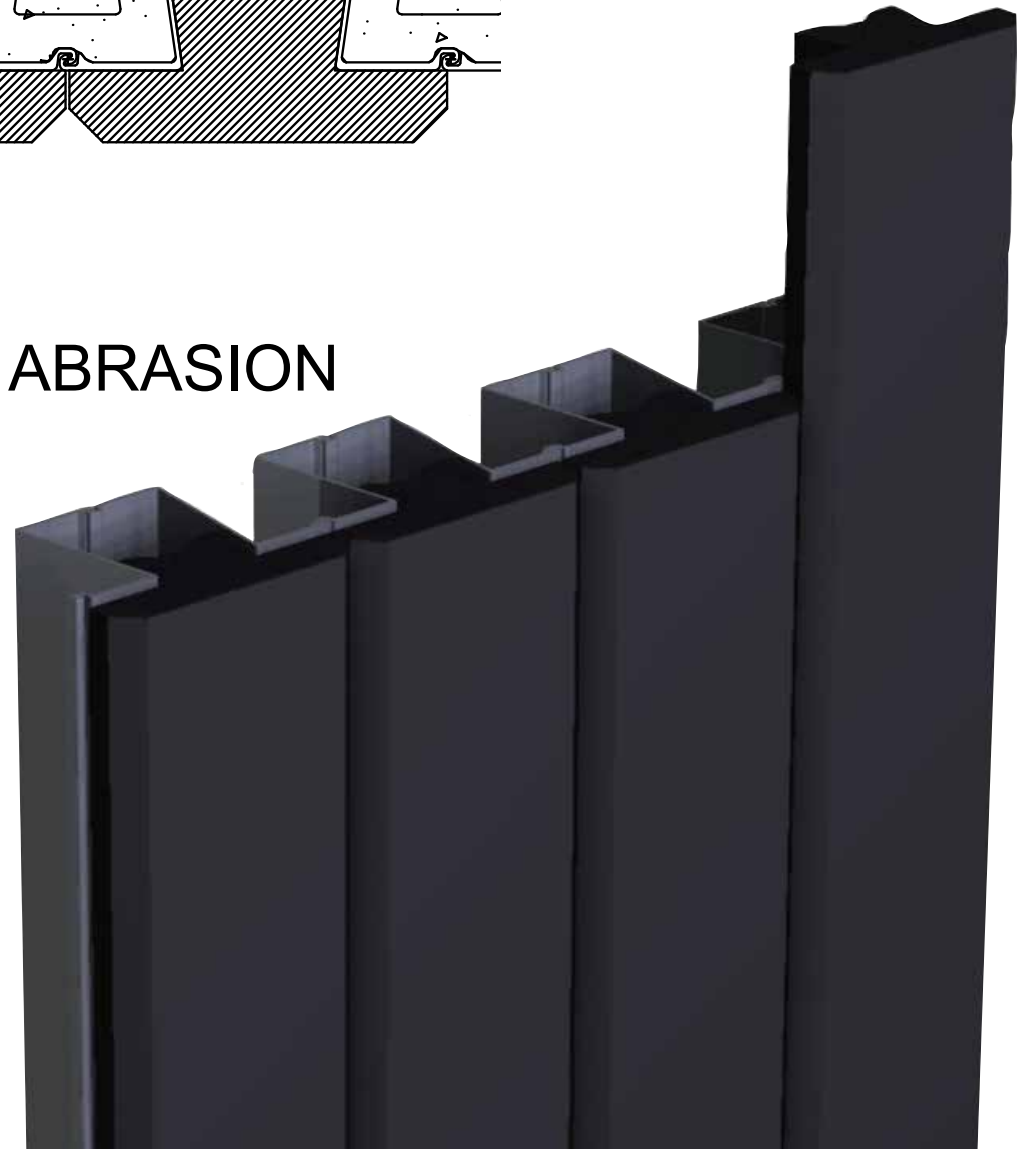


RUBBER INSERTS

KEYED RUBBER, CORROSION / ABRASION

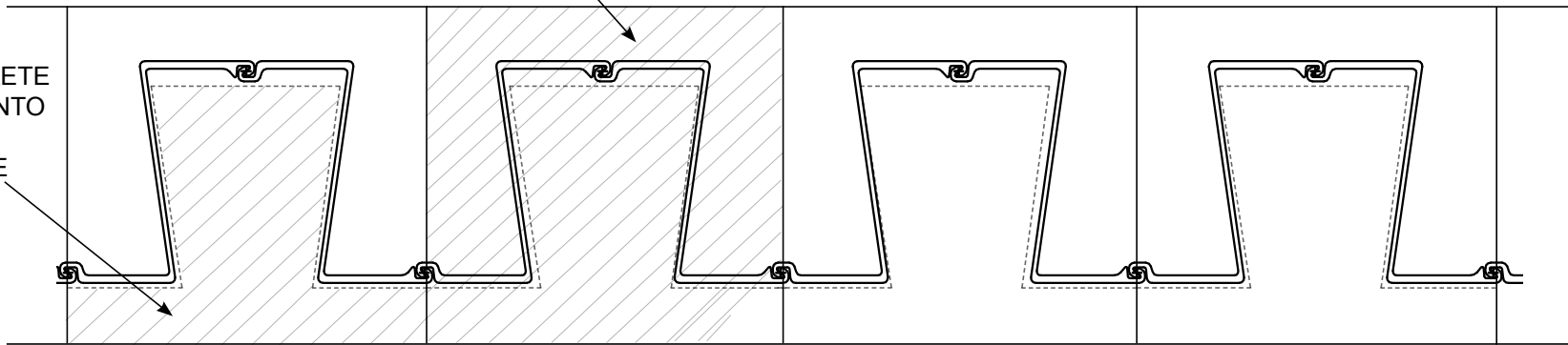
Rubber provides one of the best forms of protection against abrasion. The "T" shaped rubber panels engage in the dovetail, possibly followed by infill concrete, will give protection against abrasion and reduce the effect of corrosion. Rubber "T" panels are made from re-cycled vehicle tyres. When used on both sides of the sheet pile they make excellent "beach groynes". The Key Piles provide structural strength and the rubber provides durability.

- Steel plate
- Steel plate + vulcanised rubber
- Moulded re-cycled rubber



CONCRETE CAP TOP CAN BE
PRE-CAST TO SUIT

CAST CONCRETE
CAP KEYED INTO
THE PAN
OF EACH PILE



CONCRETE CAP
SIZE TO SUIT

KEYED CAST
CONCRETE
LOCATION

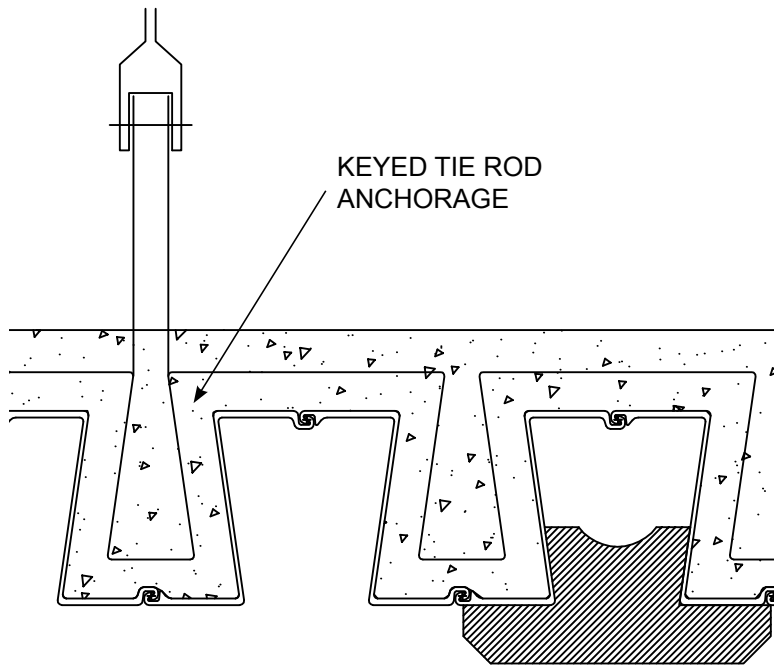


KEYED PRE-CAST CONCRETE INSERTS

Pre-cast concrete elements engaged in the Key Pile dovetail enable the Engineer or Architect to provide special finishes or features which may otherwise be difficult when in a marine environment.

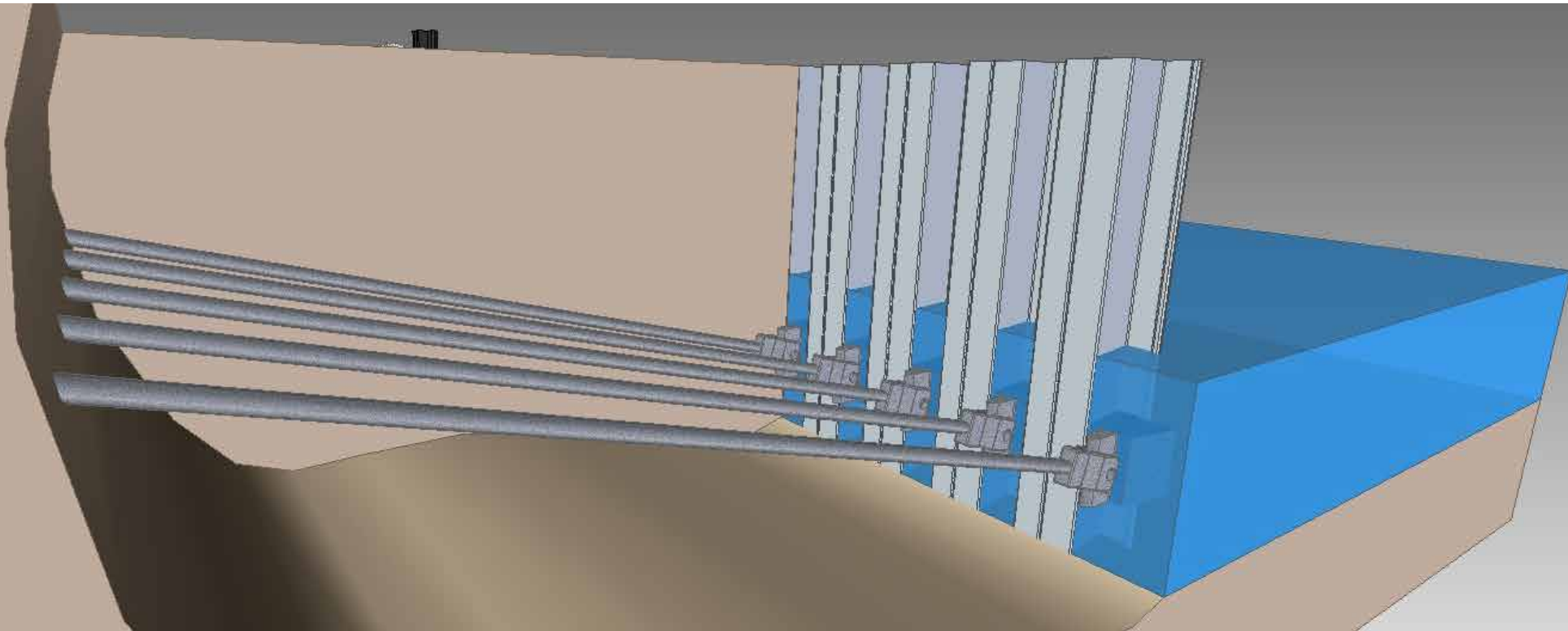
- Architectural finishes
- Exposed aggregate
- Embossed motif
- Corrosion/Abrasion protection

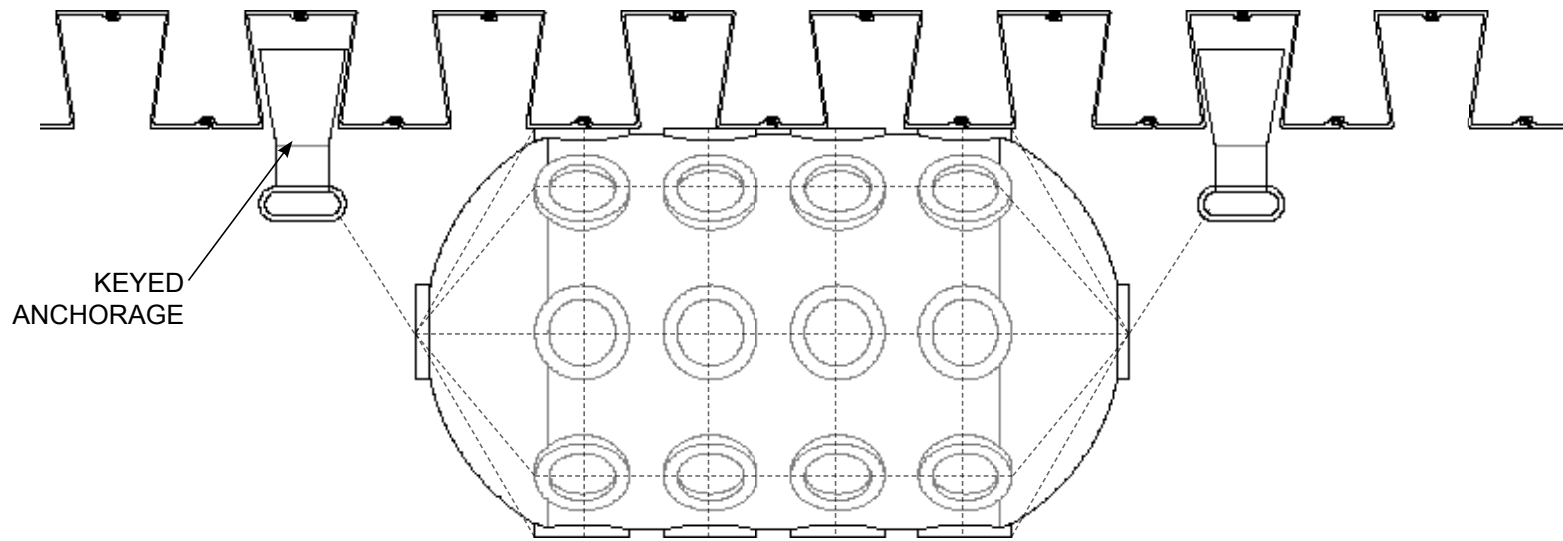




KEYED TIE BACKS

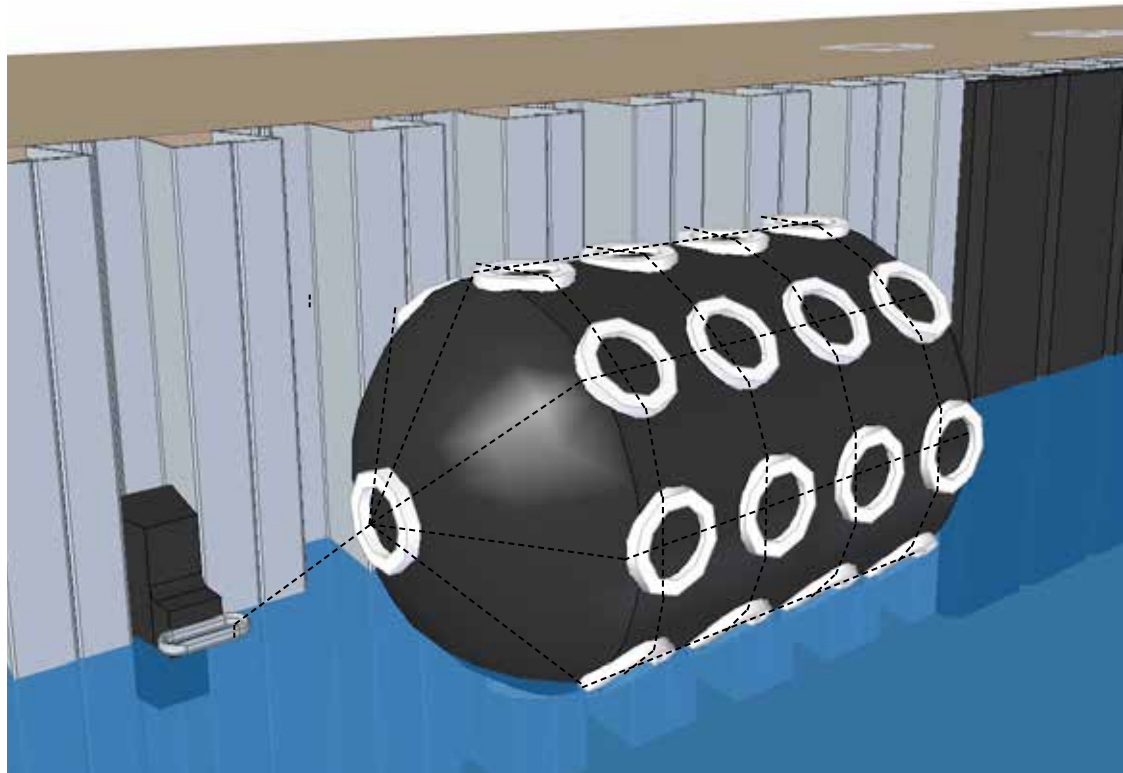
Key Piles also offer the facility to engage tie rod anchorages, possibly below low tide level and without the need for cutting or welding.

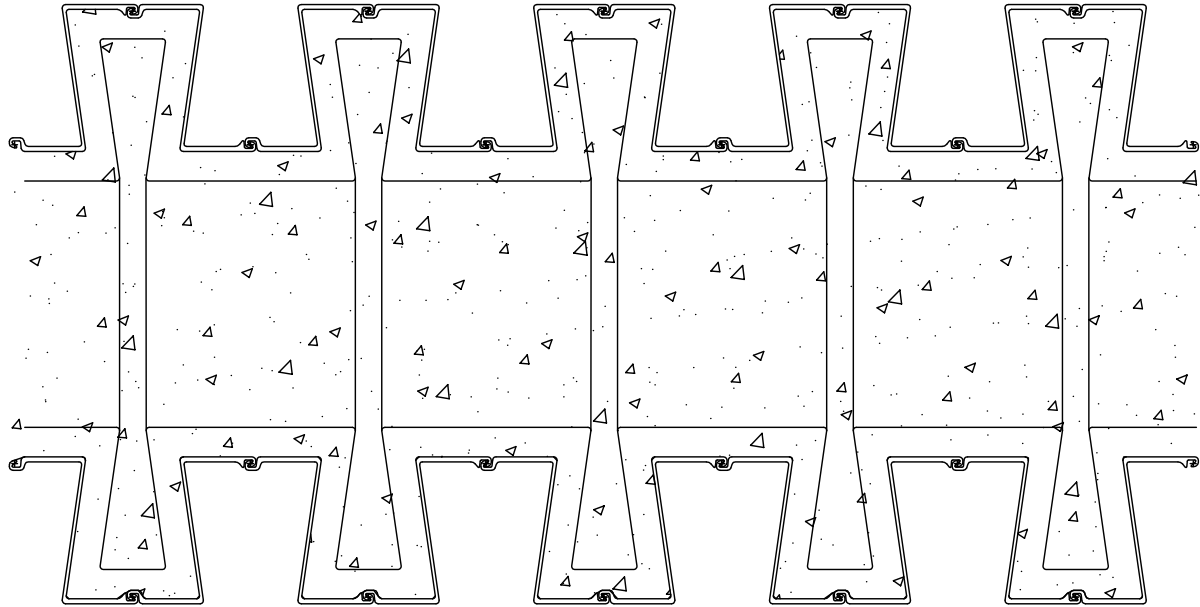




FENDER ANCHOR KEYED POINTS

Floating retainers can engage Key Piles to retain floating fenders, particularly beneficial in dock facilities with a high tidal range.

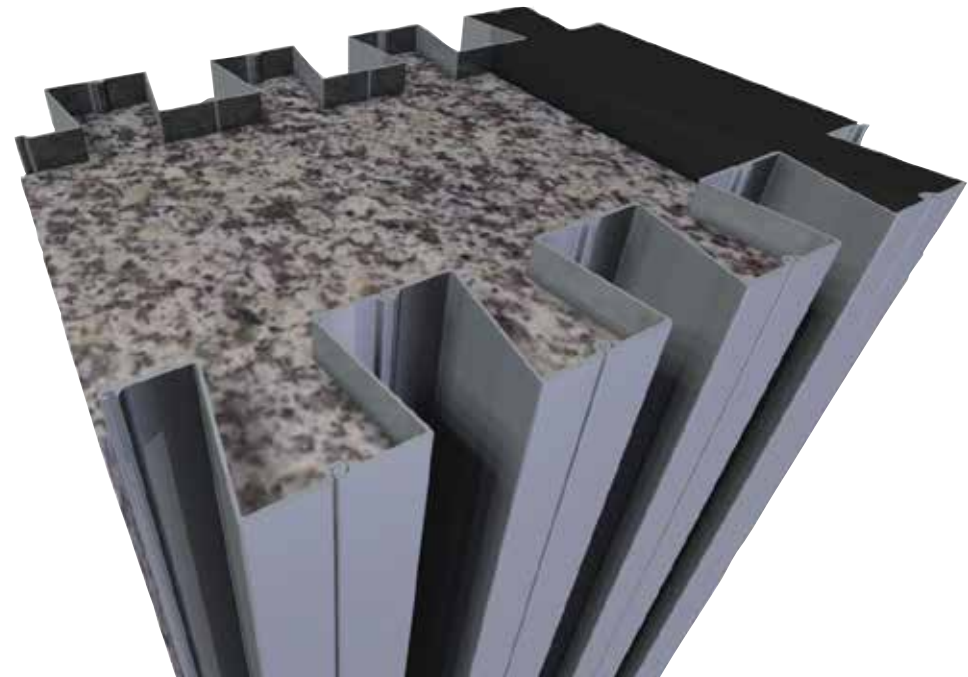




HIGH MODULUS WALL

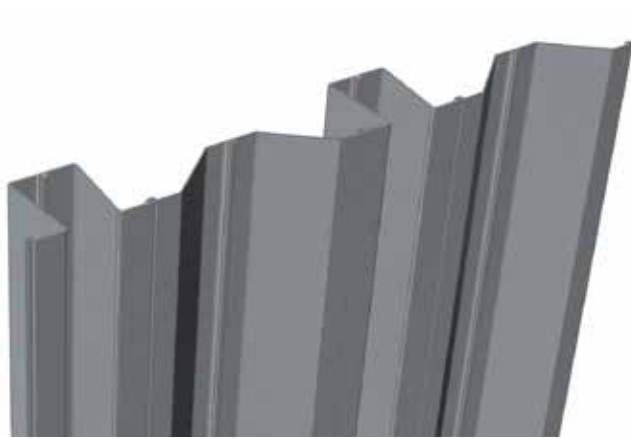
Using double rows of Key Piles, tied and spaced with reinforced concrete, it is possible to achieve an infinite range of modulus using what originates as standard profiles. In deep quay walls it should be remembered that the front and back rows can be staggered providing lower modulus at the top and bottom where high modulus is not required but having a big modulus where it is required. This also makes for material savings over piled retaining walls having a constant section throughout their length.

It should be remembered that Key Piles can be installed in many locations using hydraulic pressing equipment producing negligible noise or vibration.



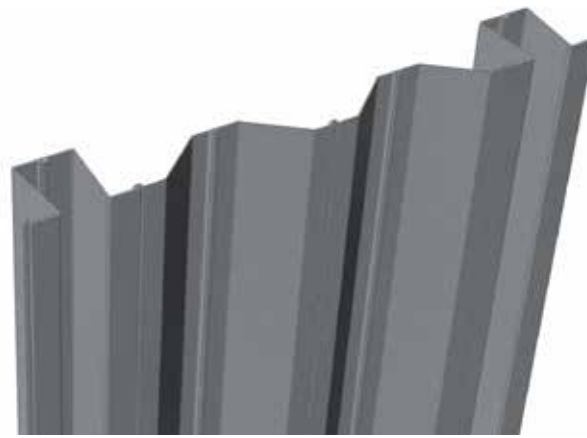
KEY PILE COMBI WALL

- Combined pile system featuring Key Piles and AZ double piles
- Can combine section properties for fully interlocked system
- Pile sections can be same “mother” section or different
- Potential for more intermediate piles using stiffer primary piles for weight efficiency
- Unique temporary guide facility doubles up for potential support system
- Presents unique silent vibration-less installation potential for combined walls for the first time
- Increased potential for deeper cantilever support using stiff systems



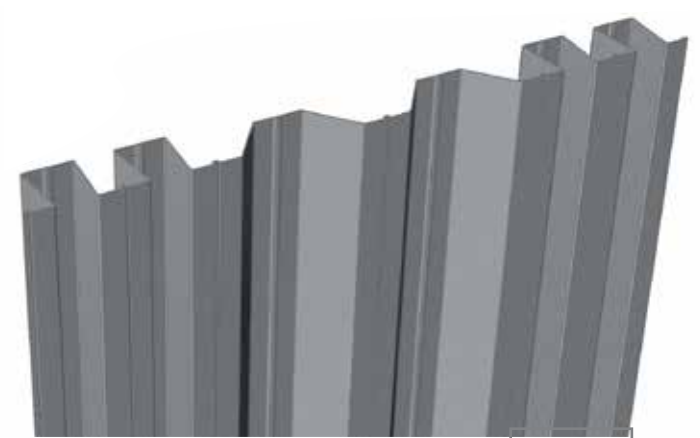
AZ32-750 / AZ12-770

1x1



AZ32-750 / AZ12-770

1x2



AZ18-800

2x2



DCP - silent / vibration free pile pressing system

Comparison Key Pile - Systems



GU 23N
AZ26-700

Key Pile
Combi - 1/2



Key AZ32-750 - 60% AZ12-770

Key Pile Combi - 1/3



Key AZ32-750 - 60% AZ12-770

Key Pile Combi - 1/1 –
High Modulus wall

Key AZ32-750 + 80%



| Modulus cm ³ /m | Inertia cm ⁴ /m | Weight kg/m ² |
|-------------------------------|---------------------------------|-----------------------------|
| 2335 x B _B 2600 | 52510 x B _D 59720 | 151 147 |
| 2540 | 76176 | 137 |
| 1227* | 36313* | 107 |
| 6133 | 181565 | 262 |

* = -Intermediate pile
discounted



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