



RETAINING WALL

PRODUCT BROCHURE

TW SERIES • CW SERIES

PRECAST RETAINING WALL

Earth retaining structures are commonly built in the man-made environment to support earth platforms with abrupt change in level. The retaining wall structures and constructed from various materials and available in several structural forms to provide wall stability and to meet serviceability requirements.

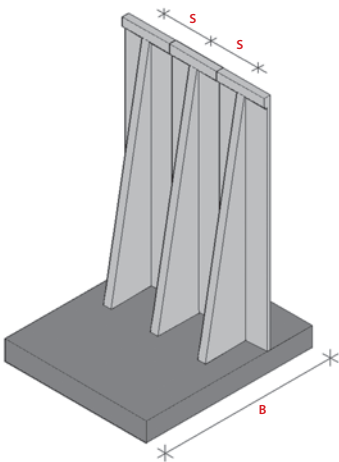
Indeed, major advances in the understanding of soil mechanics, analytical theories, reinforcing techniques and concrete technologies have contributed greatly towards the development of new design concepts with better performance and features.

With the drastic escalation of material and labour costs in recent years, more innovative approaches in design and construction of earth retaining structure are required. There is an urgent need for more efficient and industrialised construction of concrete retaining wall to optimize the resources involved, i.e. the precast retaining wall.



PRODUCT SPECIFICATION

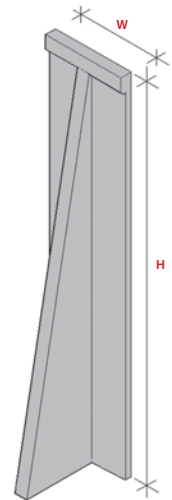
The precast Tripod wall (TW) system is a speedier and more cost effective precast way of constructing reinforced concrete retaining wall. The system consists of a series of Tee-shape precast wall stem panels stabilized with in-situ base slab on-site. The combined benefits afforded by precast concrete technology and efficiently designed wall sections will permit 'top-down' construction with fast-track processes and reduce site risks. Technically, ribbed or tee-section is well suited to meet both the structural and functional requirements.



Precast Tripod Wall

PRODUCT CODE	HEIGHT H (mm)	WIDTH W (mm)	WEIGHT (tonnes)	IN-SITU BASE LENGTH B (mm)
TW-6	6000	1500	5.17	4500
TW-7	6500	1500	5.60	4875
	7000		6.03	5250
TW-8	7500	1500	6.46	5625
	8000		6.89	6000
TW-9	8500	1500	7.32	6375
	9000		7.92	6750

- * Design criteria base on live load: 10 kN/m² (flat surface retain)
- * Required allowable bearing pressure: 150 kN/m² to 250 kN/m² (varies to differ height retain)
- * Tie back system to consider depending on the design requirement and site condition



APPLICATION



Development Project

Building Platform, Earth Retention and Slope Protection



Roadwork

Embankment, Bridge, Abutment and Wingwall

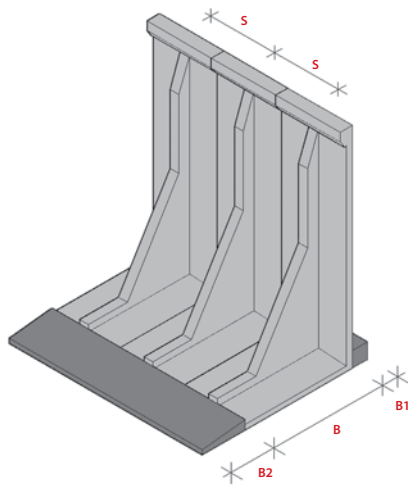
In this context, reinforced concrete retaining walls are becoming more popular in comparison to other wall systems. The system essentially comprised of vertical wall stem cast monolithically with horizontal base slab, forming an 'L' or inverted 'T' shape. The base slab is further divided into toe base at the front side of the wall stem and heel base on the earth-face side. The base length is generally adequate in the range of 0.60 to 0.75 of the retained wall height, for even distribution of supporting soil pressure.

The weight of the suitable soil backfill over the heel base is utilized to provide most of the resistance against sliding and overturning forces for external stability. The stem and base are designed to resist bending and shear forces to provide the required capacity for internal stability.



The precast Counterfort wall (CW) system is a revolutionary precast alternative with advantageous features. The system consists of a series of precast Tee-shape wall panels integrated with fully or partially precast Tee-bases. It is essentially the improved version of Tripod wall by having higher precast contents, and suitable for wall height 3-6m. In-situ works are limited to non-critical areas in toe slabs, heel slabs and capping beams.

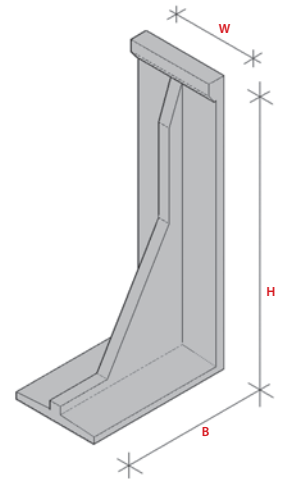
Flat or curve wall finish profiles are available for Client's selection to meet varying project requirements. Curve wall profile is specially designed to be used as wave reflector for coastal protection purpose.



Precast Counterfort Wall

PRODUCT CODE	HEIGHT H (mm)	WIDTH W (mm)	WEIGHT (tonnes)	PRECAST BASE LENGTH B (mm)	IN-SITU BASE LENGTH B ₁ + B ₂ (mm)
CW-3	2500	1500	2.71	1875	-
	3000		3.08	2250	-
CW-4	3500	1500	3.38	2500	200
	4000		3.77	2500	500
CW-5	4500	1500	4.13	2500	875
	5000		5.22	2500	1250
CW-6	5500	1500	5.64	2500	1625

* Design criteria base on live load: 10 kN/m² (flat surface retain)
 * Required allowable bearing pressure: 150 kN/m² to 250 kN/m² (varies to differ height retain)
 * Tie back system to consider depending on the design requirement and site condition



Marine Structure
Wharf, Jetty, Coastal Protection



Slope and Bank Stabilization
Drain, Canal, Pond, Lake and River

ADVANTAGEOUS FEATURES

Beneficial Effects

Experience shows that our precast retaining wall system always have better economical and technical edge over other forms of design. These distinctive benefits can always be reaped and realized by all our clients, Authorities, Developers and Contractors alike.



Quality Product and Maintenance Free

- Accurate dimension of product to close tolerances
- Good compaction and production control during manufacturing
- Very durable end products achieved with quality concrete

Shorter Construction Time

- Quick and easy installation process with minimal labour
- Less vulnerable to inclement weather
- Production commences in parallel with site work

Enhanced Aesthetics

- Better control gives good finishes and yields aesthetic walls
- Smooth finish reduces collection of stains and/or fungi
- Specially designed vertical recesses to camouflage joint gaps

Environmental Friendly

- Less material wastages
- Reduced environmental pollution through less formwork required
- Contribute towards sustainable development in construction



Design / Specification

- Reinforced concrete design to BS8100
- Concrete grade fcu = 40MPa (for standard design)
- Higher grades or loading specification can be customized to meet specific project requirements
- A comprehensive range of sections catered for diverse applications is available

Manufacture

- Cement (OPC) to MS522
- Aggregate (20mm) to MS29
- Steel bar to MS 146
- Admixture to MS922

Installation

Work sequence:

- Site clearing, preparation of access and working platform to machinery requirements
- Excavation and preparation of wall base to specification, compaction level trimming
- Lift and rotate the wall panel to installed orientation
- Place units to position, adjust with shim plates/ or base levelling where required
- Cast heel and toe slab/ or install tie-slab where applicable
- Place filter fabric over joint gap
- Backfill with compacted suitable earths
- Cast capping beam



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