Solution Provider For GREEN Precast Concrete With Cutting Edge Technology

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REVISION 2022

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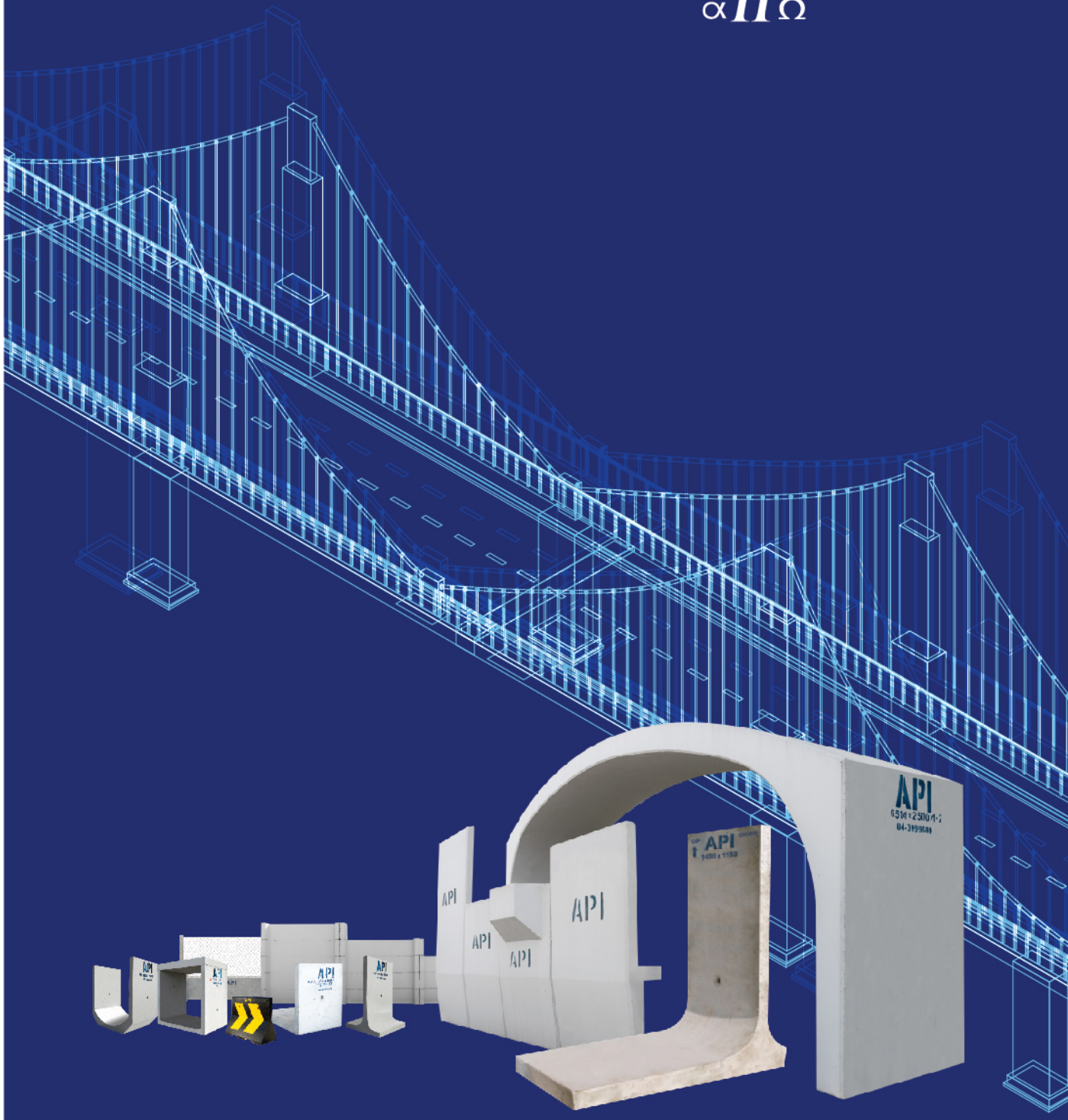
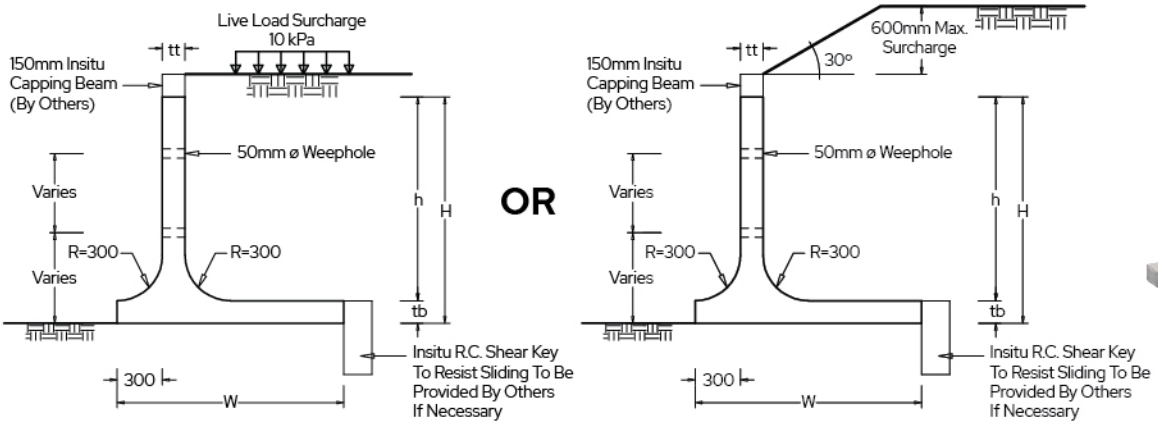



# Wall, Arch & Parapet

Your Trusted GREEN Precast Manufacturer In Malaysia

## API L-SHAPE RETAINING WALL UNIT

# L-SHAPE RETAINING WALL - RW (WITH TOE)





## API Standard Design Loading

API Standard L-Shape Retaining Wall (RW) & (RWL) Unit are available in the following loading conditions and sizes as shown in table

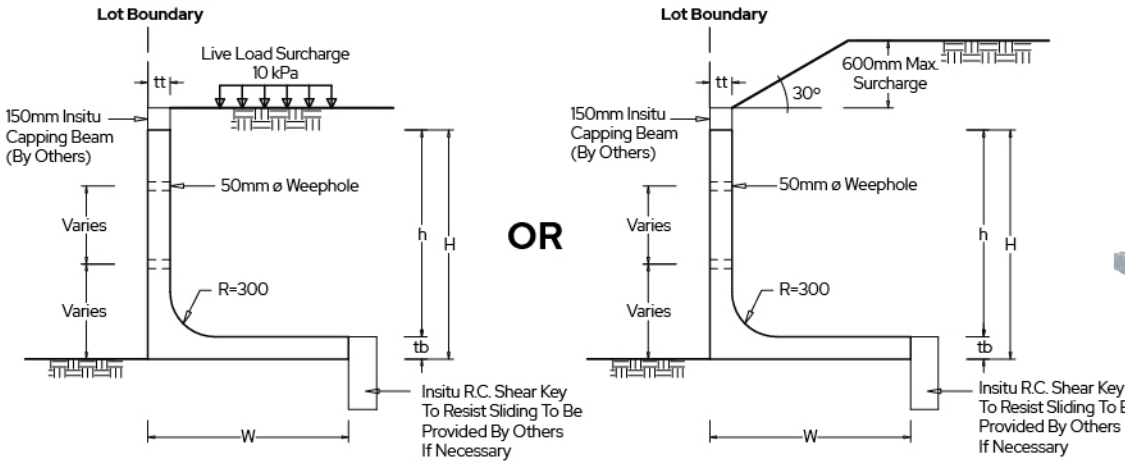
### 10kPa (RW WITH TOE)

| H (mm) | W (mm) | h (mm) | Wall Thk tt (mm) | Base Thk tb (mm) | Wt. Per Unit (tonnes) |
|---|---|---|---|---|---|
| 900 | 1650 | 800 | 100 | 100 | 0.70 |
| 1200 | 1850 | 1100 | 100 | 100 | 0.82 |
| 1500 | 2100 | 1400 | 100 | 100 | 0.96 |
| 1800 | 2300 | 1650 | 150 | 150 | 1.55 |
| 2100 | 2500 | 1950 | 150 | 150 | 1.73 |
| 2400 | 2700 | 2250 | 150 | 150 | 1.92 |
| 2700 | 2900 | 2525 | 175 | 175 | 2.42 |
| 3000 | 3100 | 2825 | 175 | 175 | 2.64 |
| 3300 | 3300 | 3100 | 200 | 200 | 3.23 |
| 3600 | 3500 | 3400 | 200 | 200 | 3.48 |

### 10kPa (RWL WITHOUT TOE)

| H (mm) | W (mm) | h (mm) | Wall Thk tt (mm) | Base Thk tb (mm) | Wt. Per Unit (tonnes) |
|---|---|---|---|---|---|
| 900 | 1350 | 800 | 100 | 100 | 0.58 |
| 1200 | 1600 | 1100 | 100 | 100 | 0.71 |
| 1500 | 1800 | 1400 | 100 | 100 | 0.84 |
| 1800 | 2000 | 1650 | 150 | 150 | 1.39 |
| 2100 | 2200 | 1950 | 150 | 150 | 1.58 |
| 2400 | 2400 | 2225 | 150 | 175 | 1.90 |
| 2700 | 2600 | 2525 | 175 | 175 | 2.25 |
| 3000 | 2800 | 2800 | 175 | 200 | 2.62 |
| 3300 | 3000 | 3100 | 200 | 200 | 3.04 |
| 3600 | 3200 | 3350 | 200 | 250 | 3.65 |

# L-SHAPE RETAINING WALL - RWL (WITHOUT TOE)





## Application

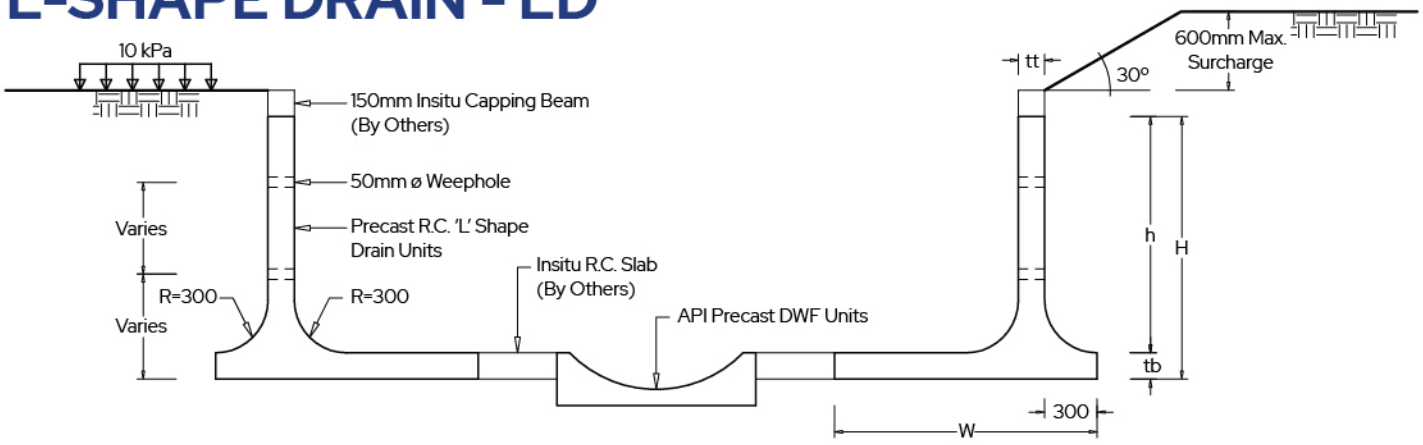
API Standard L-Shape Retaining Wall (with Toe) & (without Toe)unit is suitable to be used as :

**a. Retaining Wall**
**b. Storage Wall (Temporary or Permanent)**
**c. Fencing Wall**

### 2.5kPa & 5kPa (RWL WITHOUT TOE)

| | | Live Load Surcharge | | | |
|---|---|---|---|---|---|
| | | 2.50 kPa | | 5.00 kPa | |
| H (mm) | Thk, tt/tb (mm) | W (mm) | Wt. Per Unit (tonnes) | W (mm) | Wt. Per Unit (tonnes) |
| 900 | 100 | 850 | 0.46 | 1000 | 0.49 |
| 1200 | 100 | 1050 | 0.58 | 1250 | 0.63 |
| 1500 | 100 | 1300 | 0.71 | 1450 | 0.75 |

# L-SHAPE DRAIN - LD




| H (mm) | W (mm) | h (mm) | Wall Thk tt (mm) | Base Thk tb (mm) | Wt. Per Unit (tonnes) |
|---|---|---|---|---|---|
| 900 | 900 | 800 | 100 | 100 | 0.52 |
| 1200 | 1200 | 1100 | 100 | 100 | 0.66 |
| 1500 | 1500 | 1400 | 100 | 100 | 0.81 |
| 1800 | 1800 | 1650 | 150 | 150 | 1.37 |
| 2100 | 2100 | 1950 | 150 | 150 | 1.59 |
| 2400 | 2400 | 2250 | 150 | 150 | 1.81 |
| 2700 | 2700 | 2525 | 175 | 175 | 2.34 |
| 3000 | 3000 | 2825 | 175 | 175 | 2.60 |
| 3300 | 3300 | 3100 | 200 | 200 | 3.23 |
| 3600 | 3600 | 3400 | 200 | 200 | 3.53 |

## Design Loading

API Standard L-Shape Drain are available in the following loading conditions and sizes as shown in table

## Features Of API Precast R.C. L-shape Unit

API Precast R.C. L-Shape unit is available in various sizes and types as shown in the tables and can be designed to suit the site conditions and fulfill the project requirements. Easy in handling and laying, API L-Shape unit allows for fast construction in retaining structures or open channel drains.

## Design Considerations

API L-Shape unit is designed in accordance with the requirement of BS 8110 with the minimum concrete cover to reinforcement = 25mm.

API L-Shape unit is made from high strength concrete with a 28 days characteristic strength of 40 N/mm².

Soil parameters used:
- Bulk density of compacted backfill = 19 KN/m³
- Angle of internal friction = 30°
- Coefficient of active earth pressure = 0.333

Hydrostatic pressure is eliminated by provision of 50mm diameter weepholes placed along the wall.

The backfill material adjacent to the wall should be granular type of soil.

Our standard design is catered for a maximum height of 150mm in-situ capping.

For other loading conditions and sizes requirement, kindly provide the information and contact our Technical or Marketing Department for a special design.

## Stacking

All units should be stacked uniformly on leveled ground.

## Jointing

API L-Shape unit is supplied with plain butt joints in 1.0 metre standard length. Cement mortar is normally used to fill the gap between the units.

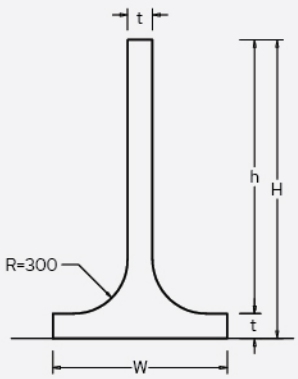
## Laying

API L-Shape unit should be laid on the prepared bedding (preferable compacted sand bedding]. However, in bad ground condition, it may be necessary to replace with suitable soil or provide with piled foundation [by others] which is subjected to the engineer's (or s.o] specification and details.

# T-SHAPE WALL

| H (mm) | W (mm) | Thickness, t (mm) | Wt. Per Unit (mm) |
|---|---|---|---|
| 1500 | 900 | 100 | 0.66 |
| 1800 | 900 | 100 | 0.74 |
| 2100 | 900 | 100 | 0.81 |
| 2400 | 900 | 100 | 0.88 |
| 3000 | 900 | 100 | 1.03 |
| 3600 | 1200 | 100 | 1.25 |

* For further height, kindly inform our Marketing or Technical Department.





## Application

API T-shape Wall is manufactured for use as fence wall at boundary of:

a. Factory
b. Warehouse
c. Residence house
d. TNB station
e. Water storage tank
f. Sewerage treatment plant etc.

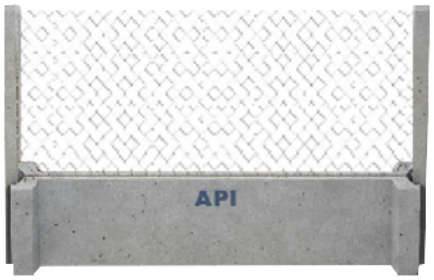
## Design Loading

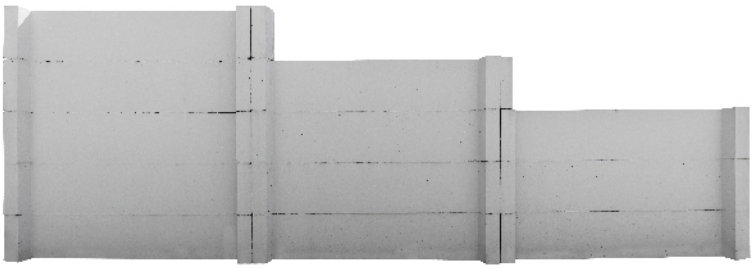
API T-shape is designed for self-stability only without any loading consideration.

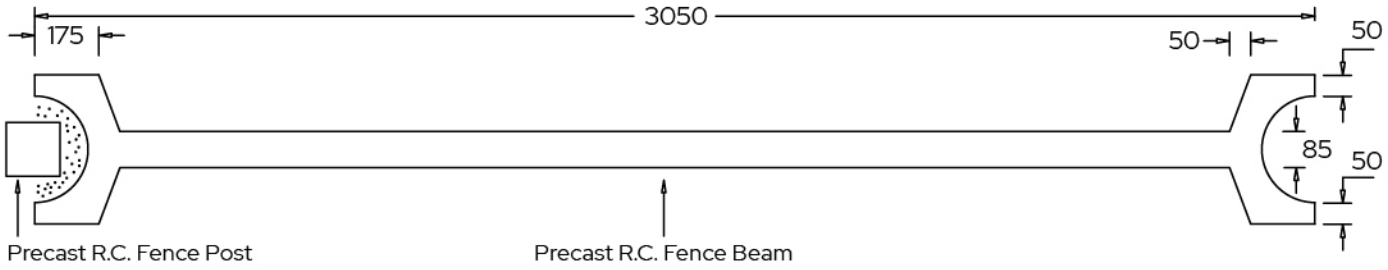
# API PRECAST REINFORCED CONCRETE FENCE (BEAM & POST)

## Application

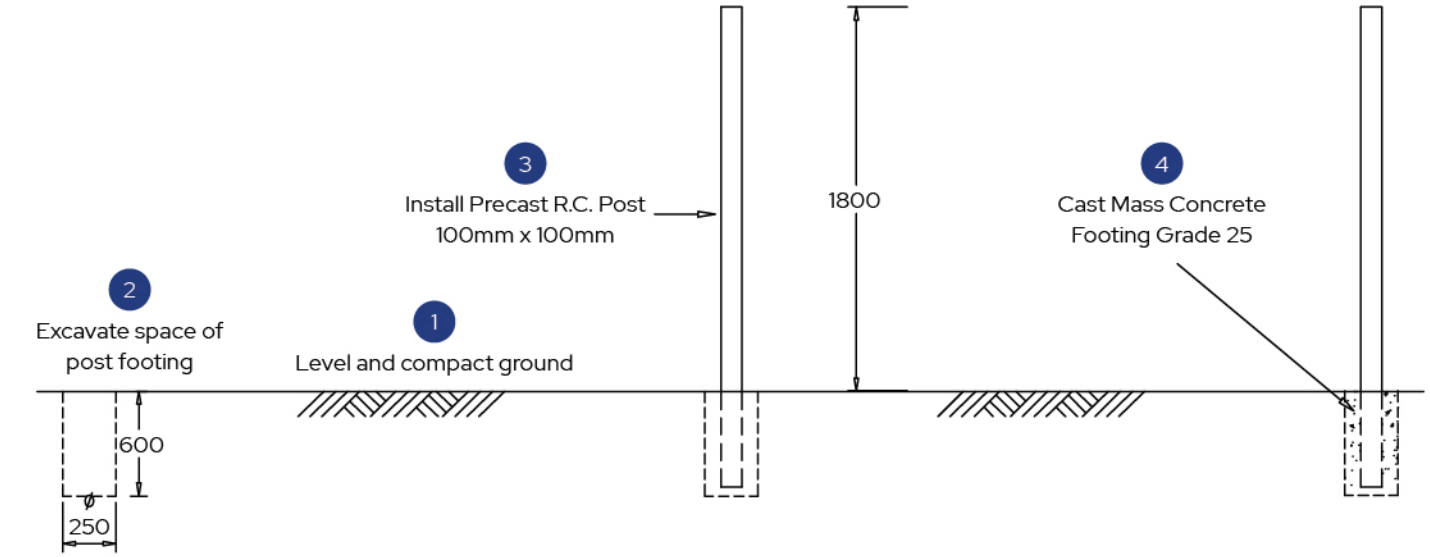
- Boundary fence wall as security barrier to trespassing.
- Noise barrier wall for dispersing traffic noise beyond residential houses.

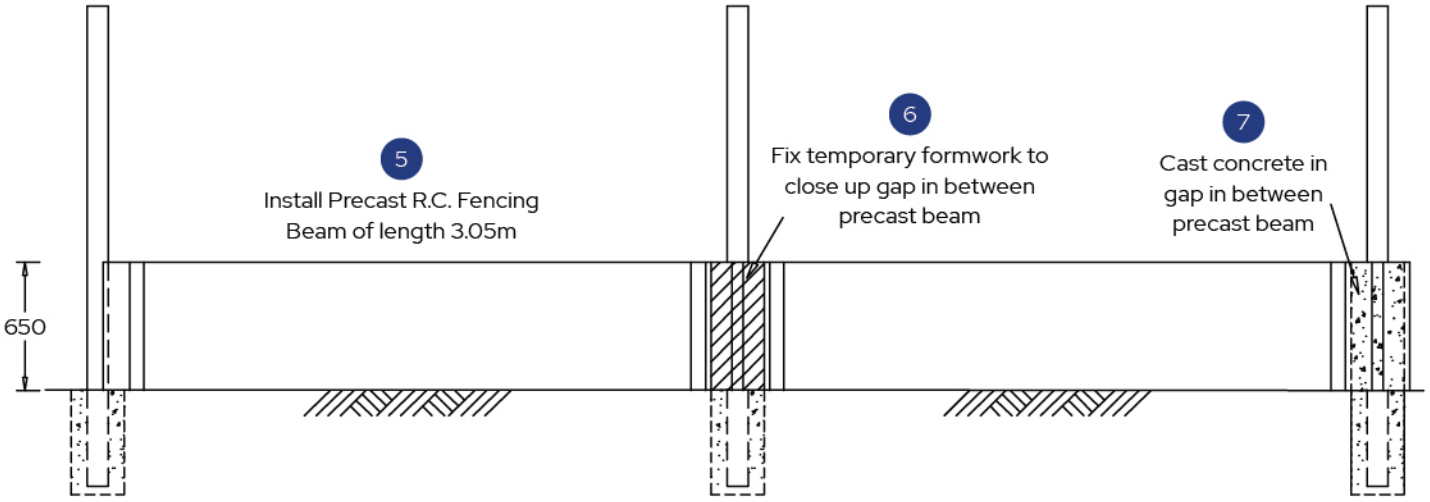





## Installation Sequence Of Precast Fence Beam & Post



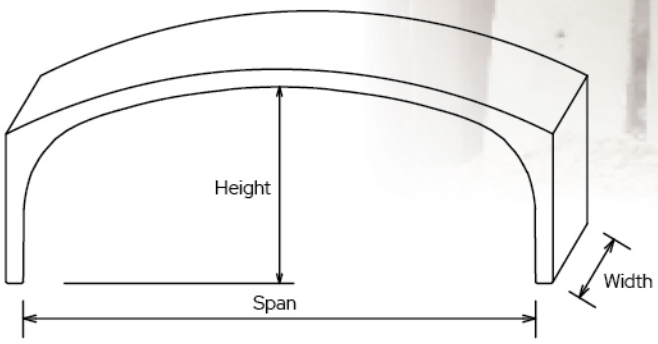



# PRECAST CONCRETE ARCH

## Application

API Precast concrete arch is commonly being used as bridge structure over waterway. The arch become ideal replacement for conventional culvert crossing, enhance on aesthetic view and free way for water flow.

| Span (mm) | Height (mm) | Width (mm) | Weight (Tonnes) |
|---|---|---|---|
| 6514 | 2500 | 1200 | 8.2 |
| 6522 | 3000 | 1200 | 8.8 |
| 6530 | 3500 | 1200 | 9.4 |
| 8000 | 2500 | 1200 | 10.3 |
| 8015 | 3000 | 1200 | 11.0 |
| 8030 | 3500 | 1200 | 11.7 |
| 9500 | 2500 | 1200 | 12.6 |
| 9515 | 3000 | 1200 | 13.3 |
| 9530 | 3500 | 1200 | 14.0 |

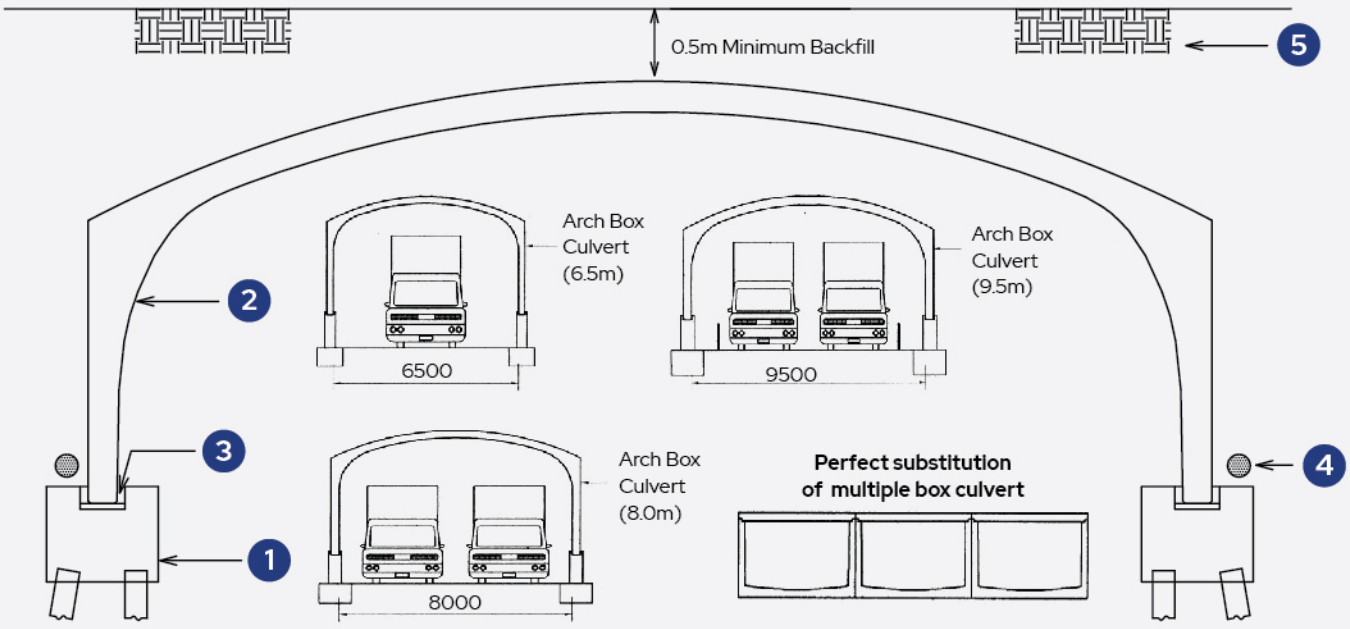



## Production

API Precast concrete arch is produced under factory controlled condition that are certified to MS ISO 9001:2015 by SIRIM. The arch is manufactured in rigid and dimensionally accurate mould to facilitate the accurate fixing of steel reinforcement cage.

## Construction Sequence

1. Construct pile foundation, with mortar levelling pad on top of footing.
2. Install precast concrete arch into its final position.
3. Grouting of pocket keyway and sealing of joint between arch.
4. Laying drainage pipe along earth side near soffit of arch.
5. Backfilling arch with suitable material.




## Design Considerations

The design of precast concrete arch is in accordance with
a) Structural Use of Concrete - BS 8110: Part 1.
b) Loads For Highway Bridges - BD 31/01.

Concrete 28 days characteristic strength of 40 N/mm².

Hydrostatic pressure is eliminated by provision of drainage system along earth side near soffit of arch.

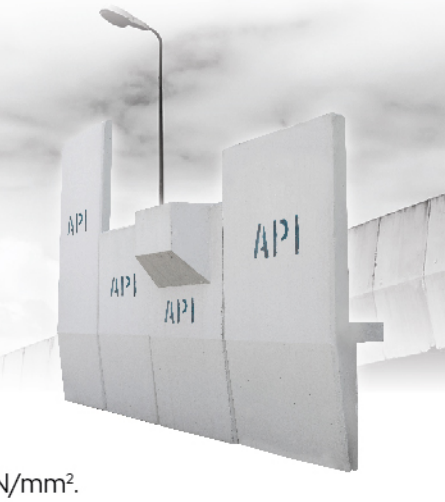
Precast arch is supplied with plain butt joint. Nominal gap between arch to be filled with mortar.

Backfill over crown of arch from 0.5m to 2m, any other backfill height would be customized design..

The backfill adjacent to arch should be of granular material, angle of internal friction 30°.

Maximum difference level of backfill at back of arch during construction stage must not exceed 0.6m.

# API CONCRETE PARAPET WALL




## Application

API precast concrete parapet unit is suitable to be used on:
a. Flyover b. Bridge c. LRT d. MRT

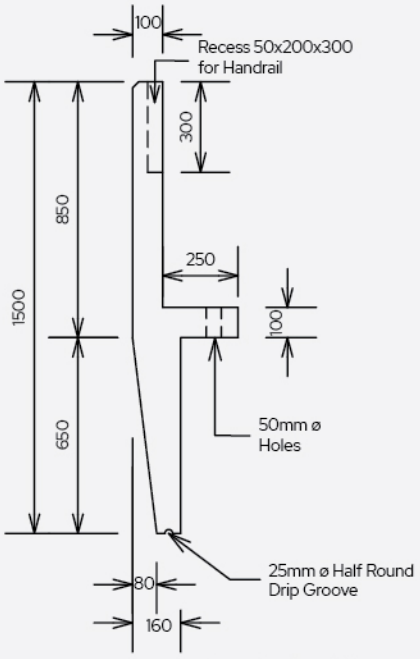
## Features

API concrete parapet wall with standard size of 1500mm x 1000mm is available as shown in below diagram. There are 2 different types:- typical unit and parapet for lighting post. API precast parapet is supplied with protrusion of starter bar which to be lapped with steel bar from deck slab. Precast parapet forms the outer part of parapet, whereas the inner part of parapet beside carriageway to be cast insitu on deck slab at project site.

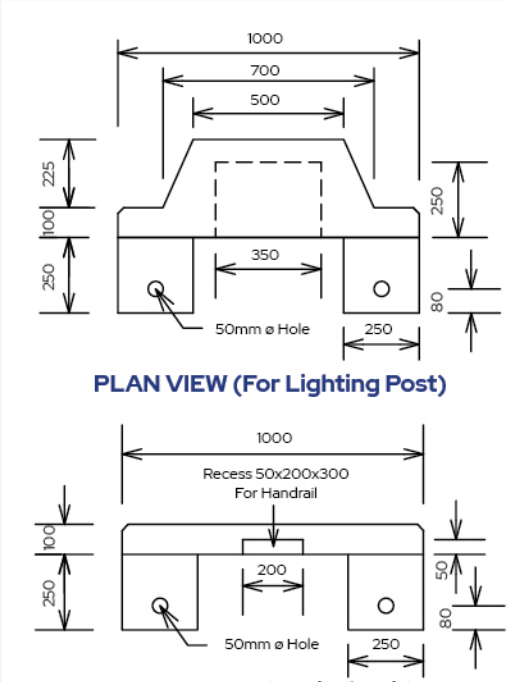
## Concrete Strength

API parapet is made from high strength concrete with 28 days characteristic strength of 40 N/mm².

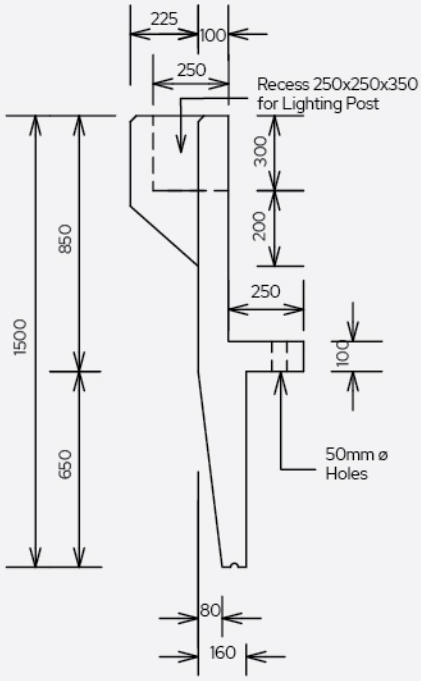
### STANDARD PARAPET 1500 X 1000




SIDE ELEVATION (Typical Unit)



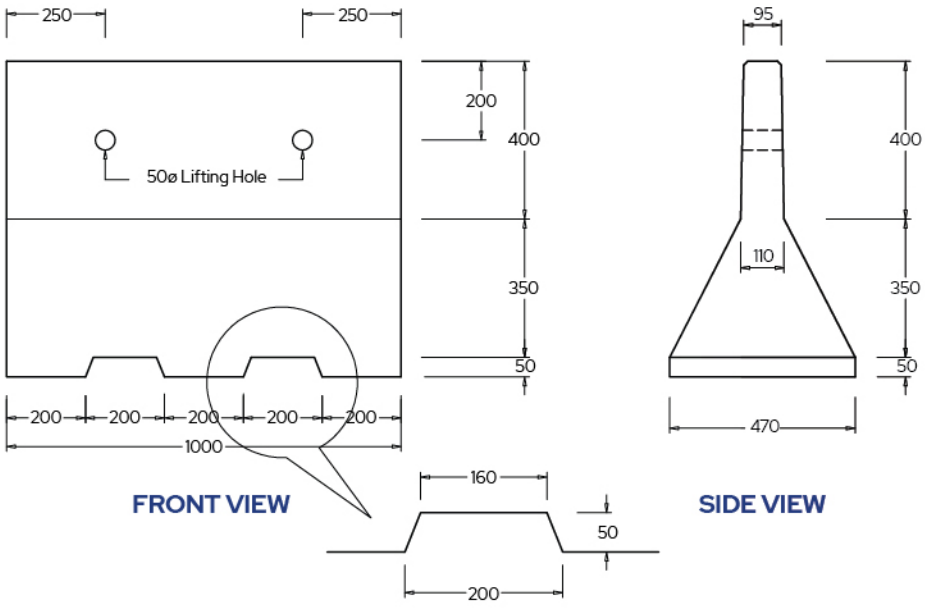

PLAN VIEW (Typical Unit)




SIDE ELEVATION (For Lighting Post)

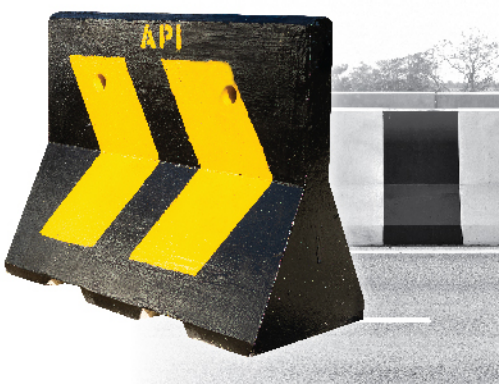
# API PRECAST JERSEY BARRIER

### Dimensional View




FRONT VIEW

SIDE VIEW



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