

ECS MASONRY

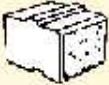
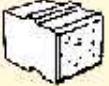










Erosion Control Systems Pty Ltd

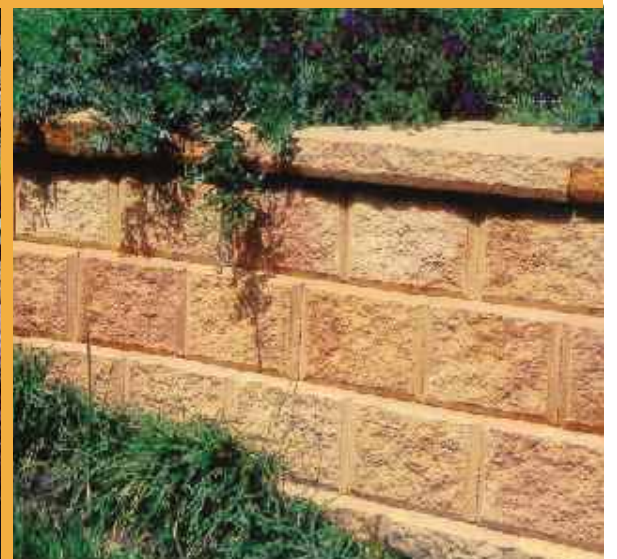
PISA[®]

Retaining Wall System

The choice of professional contractors



PRODUCT	CODE	DESCRIPTION & DIMENSIONS (H x W x D)	~ WEIGHT PER UNIT	No./M ²	No./ Lin M ²	UNITS PER PALLET
	5121	Solid Straight Unit 150 x 200 x 220	12.5	33	5	132
	5122	Solid Tapered Unit 150 x 200 x 220	12.00	33	5	132
	5101	Hollow Straight Unit 150 x 200 x 220	9.5	33	5	132
	5102	Hollow Tapered Unit 150 x 200 x 220	9.0	33	5	132
	5131	Right Hand Corner 150 x 300 x 200	18.0	-	-	48 L/H & 48 R/H
	5132	Left Hand Corner 150 x 300 x 200	18.0	-	-	48 L/H & 48 R/H
	5123	Top Unit (Straight Walls Only) 150 x 200 x 220	12.5	-	5	132
	5135	600 Capping Unit 65 x 620 x 315	22.7	-	1.7	60
	5136	600 End Capping Unit 65 x 620 x 315	22.7	-	1.7	60
	5134	390 Capping Unit 65 x 390 x 315	15.5	-	2.6	90
	5133	390 End Capping Unit 65 x 390 x 315	15.5	-	2.6	90
	5103	200 Capping Unit (Check Availability) 65 x 200 x 220	5.3	-	5	270





Advantages

- *Won't rot like a wooden sleeper wall*
- *No mortar required*
- *No pins needed*
- *Self aligning*
- *No concrete footing required*
- *Ability to easily make steps. Internal and external to wall*
- *Virtually maintenance free*
- *Ability to construct the wall yourself with no previous experience*
- *Flexible system won't crack like a brick wall*
- *Range of capping units to suit your job*

Colour range



Ivory



Autumn Gold



Charlestone



Bluestone

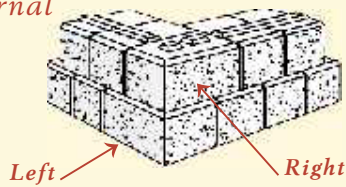


Desert Sand

NOTE: These colours are an indication only, please contact your nearest distributor to view sample colours.

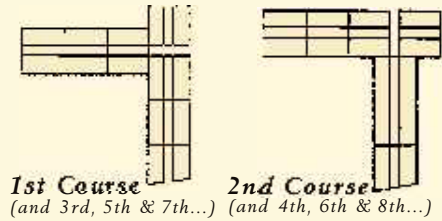
Corners

External



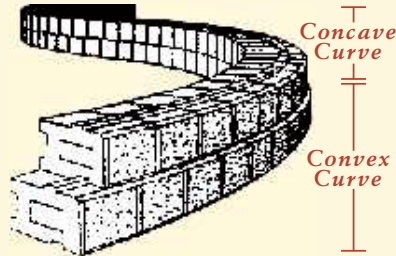
- Use left and right cornerstones alternately

Internal



- Using straight PISA units you can create internal corners with the method detailed above.

Curves



- To create a convex curve use tapered units. Use Left tapered units on one course, right tapered units on the next, alternating up the wall.
- To create a concave wall use straight units.
- Minimum radius: 2400mm (Add 20mm to this for each course in the wall)

Steps



- Steps are easily created with Pisa by simply using standard units for risers and split face capping units for step treads.
- You can create internal or external stairs to your wall.
- Ask your Pisa salesperson for a Pisa Stair construction help sheet.



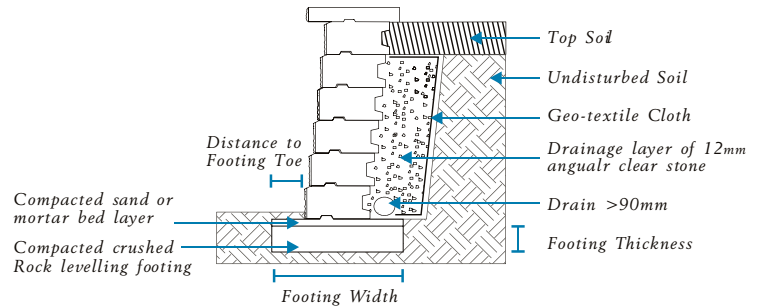
PISA® Height Tables

Walls up to 900mm in height

Unreinforced retaining wall

	MAXIMUM HEIGHT ACHIEVABLE (mm)	Footing Thickness (mm)	Footing Width (mm)	Footing Toe (mm)
Solid Block	900	200	600	250
Hollow Block	600	200	600	250

The wall heights shown above apply for average soil conditions (Friction Angle > 20° and cohesion factor > 5kPa). There must be no surcharge (ie no applied load or backfill slope > 1:4)



Walls from 1000mm to 1500mm in height

(Engineer design required)

No-fines concrete reinforced walls

Walls with level Backfill					
No. of Courses	HEIGHT OF WALL (mm)	Width of No-Fines concrete behind wall (mm)	Footing Thickness (mm)	Footing Width (mm)	Footing Toe (mm)
In most soils. (must have a friction angle at least 25°)					
10	1500	430	250	700	300
9	1350	370	200	600	250
8	1200	310	200	600	250
7	1050	250	200	600	250

Walls with sloping backfill up to 1 in 4					
No. of Courses	HEIGHT OF WALL (mm)	Width of No-Fines concrete behind wall (mm)	Footing Thickness (mm)	Footing Width (mm)	Footing Toe (mm)
In most soils. (must have a friction angle at least 25°)					
10	1500	540	390	1000	440
9	1350	470	350	900	400
8	1200	400	250	700	310
7	1050	320	200	600	250

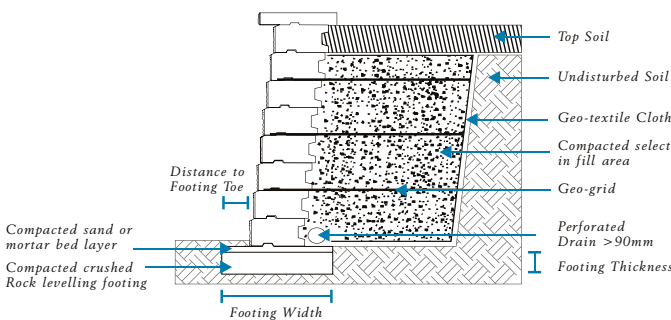
Geo-grid reinforced walls

Walls with level Backfill					Length of SRATAGRID 200 Geo-grids, (mm) including block depth									
No. of Courses	HEIGHT OF WALL (mm)	Footing Thickness (mm)	Footing Width (mm)	Footing Toe (mm)	Soil with a friction angle of at least 25°					Soil with a friction angle of at least 35°				
					10	1500	250	700	300	1500	1500	1500	1500	2000
9	1350	200	600	250		1300	1300	1300	1700		900	900	900	1000
8	1200	200	600	250		1200	1200	1300	1700		800	800	800	1000
7	1050	200	600	250			1100	1100	1500			700	700	800

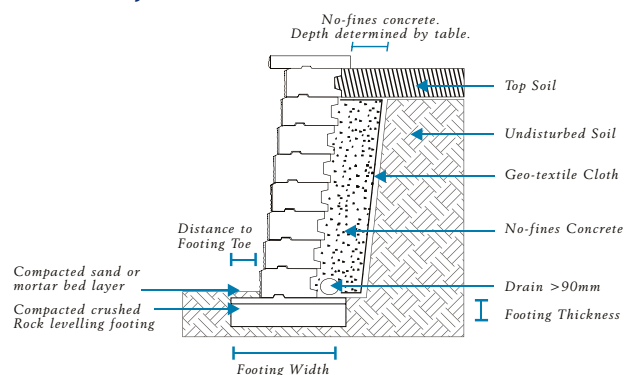
(NUMBER OF BLOCKS BETWEEN GEOGRIDS, STARTING FROM THE BOTTOM IS 1,3,3,3,.....etc)

*Note: These tables are indicative only. All walls over 1000mm in height must be designed and certified by an engineer.

Geo-grid reinforced wall



No-fines concrete constructed wall



Walls 1500mm and higher

(Engineer design required)

Walls over 1500mm in height can be achieved using the PISA retaining wall system. ECS Masonry can recommend an Engineer to design your wall to suit your specific site requirements.

General Notes applicable to all above design tables:

All retaining walls are designed to AS 4678 (Including Amendment 1), for Structure Classification 3.

All designs are based on the method published by the Concrete Masonry Association of Australia.

All retaining walls over 1500 are designed for a live load of 5 kPa.

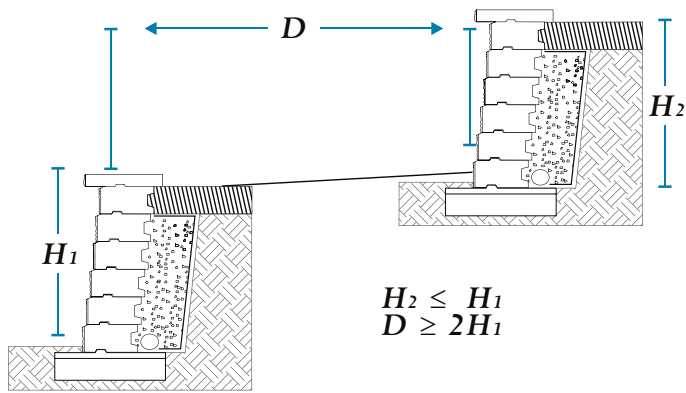
All retaining walls up to 1500 are designed for a live load of 2.5 kPa.

If live loads above these values are expected, these designs will not be appropriate.

All walls are designed using Coulumb formula, except 900mm and 700mm high gravity walls which are also designed using Rankine-Bell formula.

Cohesion is difficult to predict, is variable, may change over time, and is dependant on the effectiveness of surface sealing, surface drainage and subsurface drainage. Consideration must also be given for shrink/swell action of clay soils.

PISA[®] tiered walls



PISA[®] notes

Colour Variation

Due to the changes in raw material, variations in colour do occur. When ordering your product, order all elements of your project together to reduce the possibility of colour variation. We do not guarantee different batches will be the same colour.

Efflorescence

Efflorescence (a crystalline salt deposit) is a natural occurrence in masonry products. Efflorescence does not effect the structural integrity or strength of the product. Efflorescence will usually diminish and disappear in the course of time as the product is exposed to the elements. No responsibility will be accepted for the occurrence of efflorescence.

Delivery

When placing your order please confirm delivery zone pricing and minimum free delivery quantities applicable to your area.

Claims

Claims must be reported within 48 hours of delivery. No claims will be accepted once product has been installed. Please contact the store where goods were purchased to report any concerns regarding product colour or quality.

ECS MASONRY

Erosion Control Systems Pty Ltd

www.erosioncontrol.com.au

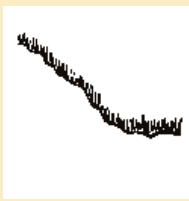
For technical assistance please call

1 300 650 195

your stockist


installation guide

1. Planning




Make a line where the front of the wall will be placed keeping in mind the 20mm setback per course. Measure lengths and heights of each section. Calculate the number of units required. If necessary contact your local Council for approval and for the location and depth of pipes and cables.

2. Excavate




Remove soil to create a trench 300mm deep and 600mm wide. Shape slope to allow for 300mm of drainage material behind wall.

3. Prepare Base



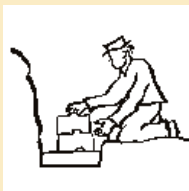
Compact base and ensure native soil is stable. Place Terrafix[®] geotextile over the excavation and up the exposed face. Place sufficient well graded angular gravel in the trench and compact to achieve a minimum finished base of 150mm thick.

4. First Course




Position a level string line to mark the location of the first course. Place the first course of units on the prepared base and ensure the unit is level front to back and left to right.

5. Stack Units




Sweep off and place next course of units in a running bond pattern. (The middle of the units is approximately above the joint between adjacent blocks below.)

6. Backfill



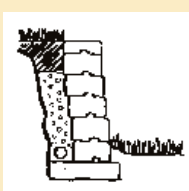
Place a 100mm Agi drain behind the first course and fill behind the wall with free draining granular material. Compact this material in 150mm lifts. Place and compact soil in front of the wall to ensure that at least half of the first course is buried. Stack more units and backfill until the desired height is achieved (900mm maximum in ideal conditions).

7. Secure Capping



On the last course of wall units place a line of 'masonry' adhesive or mortar on both sides of the tongue. Place the capping unit on top and apply pressure to secure.

8. Finish Grading



Pull Terrafix[®] geotextile to meet back of wall and place 200mm of soil on top. Slope the soil above and below the wall to ensure water will flow away from and not accumulate near the wall.