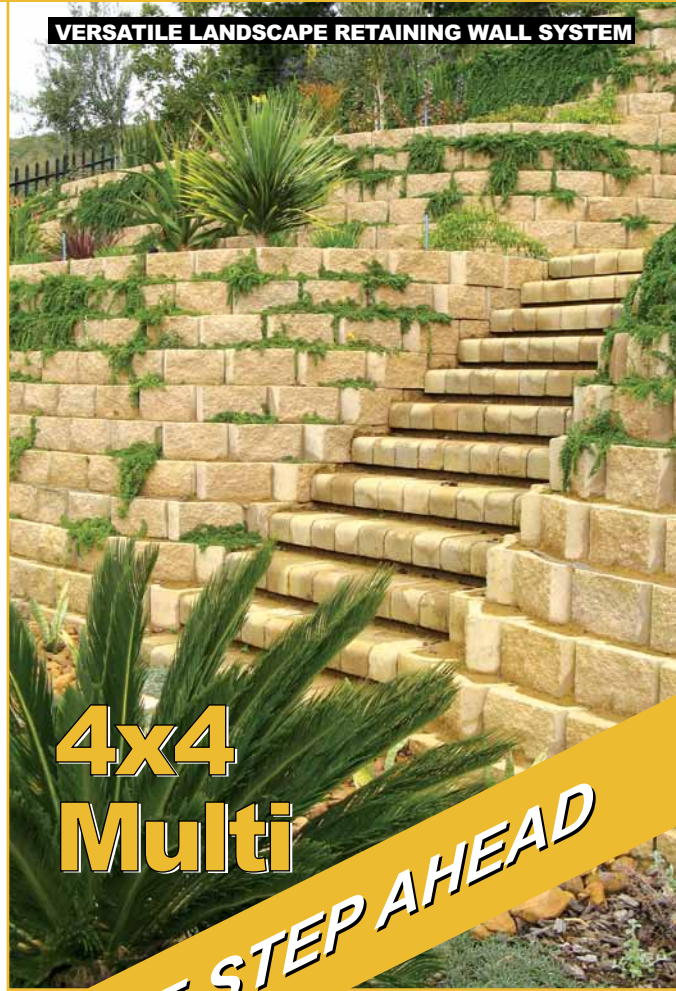


TERRAFORCE®

VERSATILE LANDSCAPE RETAINING WALL SYSTEM



4x4 Multi
ONE STEP AHEAD



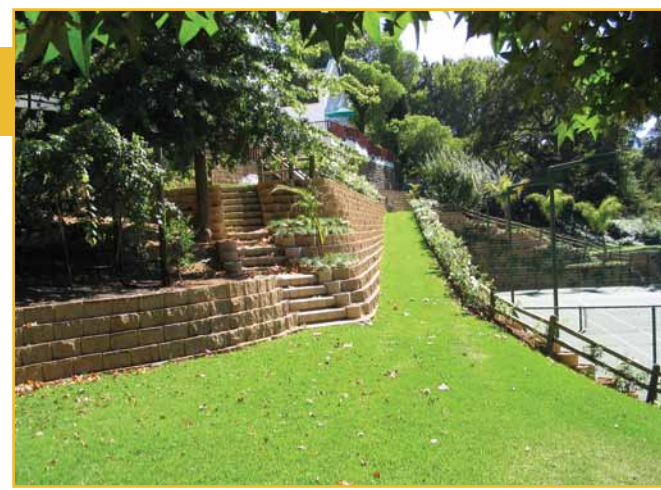
View more benefits, features and case studies on:
www.terraforce.com



STAND ALONE STAIRWAY



LOW, PLANT SUPPORTIVE RETAINING



STAIRS IN COMBINATION WITH L12 ROCK FACE BLOCKS



ACCESS STAIRS TO A LAKE WITH ROCK FACE RETAINING WALLS



COST-EFFECTIVE SEATING AT A SCHOOL



SEATING ARENA FACING STAGE



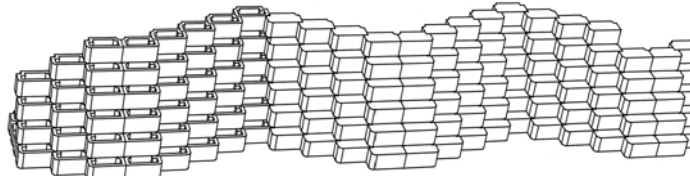
GARDEN ACCESS STAIRS

Depending on local conditions and finish required, it may be advantageous to grout the joints with sand/cement slurry. Consult your local supplier about colour matching.

INCLINATION	RISE (mm)	TREAD (mm)	SEAT (mm)
∠	A	B	C
23°	150	350	750
31°	200	330	710
35°	200	300	650
39°	200	250	550

PLANNING ALTERNATIVES

4x4 multi offers unequalled design options to cope with many site conditions.



WHY TERRAFORCE?

A LIVING WALL: The unique design allows you to make plants part of your wall.
DURABILITY: Concrete will not rot and weaken over time, and no chemical preservatives are required.
MORTARLESS INTERLOCKING SYSTEM: The units are simply stacked up without mortar to provide a cost effective, do-it-yourself system.
LAYOUT FLEXIBILITY: The half moon interlock gently handles convex and concave curves, and the wall angle can vary from vertical to shallow slopes. Create steps by reversing the block.
COLOURS & TEXTURES: Round or flat face for wall front. Consult your Local Supplier about available colours.

BRIEF INSTALLATION GUIDELINES

Develop a precise plan for your Terraforce wall by analyzing your site, noting slopes, drainage and shape of wall. Measure the length and vertical height to obtain the surface area and thus the number of units required. Remember that retaining walls require professional design / supervision input and must comply with local building regulations.

1. Prepare a level foundation, gravel or concrete as directed by site conditions. Compacted gravel foundations are usually sufficient for structures not higher than (1) one meter. On sloping sites the foundation may be stepped by block height at intervals to suit the slope.
2. Place first row of blocks to required alignment and ensure that the units are level in all directions. A small amount of mortar will assist with accurate levelling on a concrete foundation.
Note: Stretcher bond is preferred but not always possible. Stack bond is allowed. Always ensure an interlock with matching profiled corners.
3. Install drainage pipe with outlet and free draining backfill as specified behind first row of blocks. A length of flexible pipe will assist in setting out smooth curves.

TOOLS YOU MAY NEED

- Pick
- Shovel or spade
- Line and level
- Trowel
- and occasionally a disc cutter.

Your supplier will recommend a qualified installer for that professional finish.



4. Fill blocks with good quality soil or soil compost mix and tamp lightly. Select your choice of elevation by rotating the blocks.
5. Continue construction, row by row while backfilling and compacting free draining material as each row is completed with topsoil infill. In situ or precast interlocking keys to be installed when directed by the engineer.
6. When specified, install geogrid-geofabric on compacted backfill and wedged between blocks (or cut and folded into blocks) as indicated by the engineer.
7. Terraced walls must also be well founded.
8. The completed installation can now be turned into a growing investment by your imaginative choice of plants.

MAXIMUM WALL HEIGHTS (IN BLOCK HEIGHT, METRES, FEET) AND SETBACK TABLE FOR THE TERRAFORCE 4X4 MULTI BLOCK. (MULTI PURPOSE STAIR AND RETAINING BLOCK)

RETAINED SOIL	BACKSLOPE ABOVE CREST OF RETAINING WALL	WALL INCLINATION FROM HORIZONTAL							inclination mm setback inches setback		
		60°	65°	70°	75°	80°	85°	90°			
FIRM CLAY & COMPACT SILT 30° INT. FRICTION ANGLE	0°	115.5	93.3	72.8	53.6	35.3	17.5	0.0	4X4 blocks metres feet		
		4.5	3.7	2.9	2.1	1.4	0.7	0.0			
	10°	14.2	11.2	8.6	6.8	5.3	4.0	2.9		4X4 blocks metres feet	
		2.8	2.2	1.7	1.4	1.1	0.8	0.6			
		9.35	7.34	5.63	4.47	3.47	2.63	1.92			
	22°	11.3	9.1	7.2	5.5	4.2	3.3	2.6		4X4 blocks metres feet	
		2.3	1.8	1.4	1.1	0.8	0.7	0.5			
		7.40	5.94	4.69	3.63	2.73	2.19	1.73			
	SILTY SAND & SAND 36° INT. FRICTION ANGLE	0°	22.0	16.5	12.4	9.4	7.2	5.7		4.4	4X4 blocks metres feet
			4.4	3.3	2.5	1.9	1.4	1.1		0.9	
10°		14.41	10.83	8.14	6.14	4.71	3.73	2.88			
		19.6	14.4	10.5	7.7	6.1	4.7	3.5			
22°		3.9	2.9	2.1	1.5	1.2	0.9	0.7			
		12.85	9.43	6.88	5.03	3.97	3.07	2.30			
22°	16.6	11.2	8.1	6.0	4.5	3.3	2.6	4X4 blocks metres feet			
	3.3	2.2	1.6	1.2	0.9	0.7	0.5				
	10.90	7.34	5.32	3.91	2.98	2.19	1.73				

1. Wall height measured from top of foundation / leveling pad.
2. Top of foundation / leveling pad a minimum of 150mm / 0.5 ft below ground level.
3. No allowance made for surcharge above wall.
4. Factors of safety for shear and overturning = 1.5

1. These Terraforce Design Tables give an indication of internal gravity retaining wall stability only and are intended for conceptual design and estimation purposes alone. They do not take into account external and overall slope stability or boundary conditions such as the presence of groundwater.

2. Users of Terraforce walls should seek the advice of a professional geotechnical and/or civil engineer for the assessment of appropriate site and soil parameters. Terraforce cannot accept responsibility for the actual design or construction of a wall unless otherwise agreed.

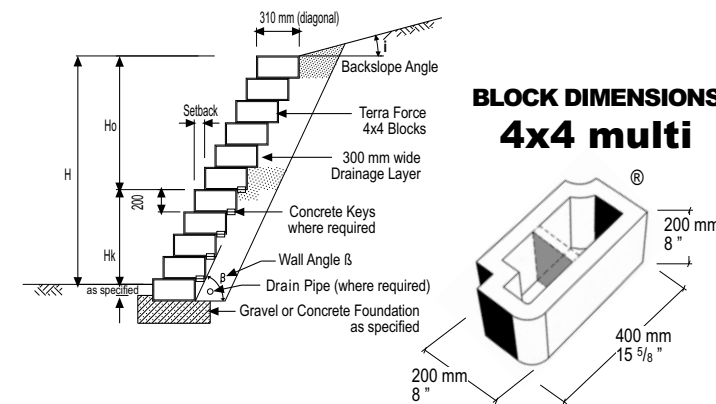
3. Copies of design manuals / software, case studies and test results are available on request. Contact your local nursery for advice on suitable plants.

Note! These tables indicate the total allowable height when walls are to be constructed without vertical interlocking keys.



Seating arena and steps for 500 spectators

Please consult our website at www.terraforce.com
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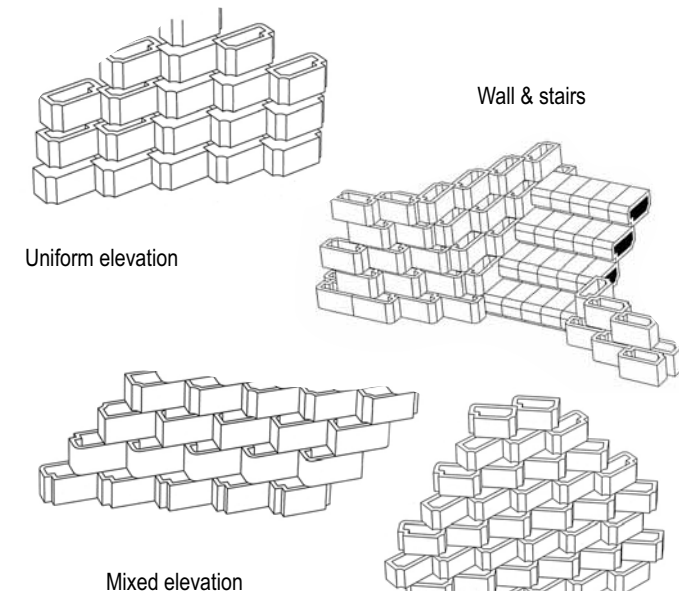


NOTE: Blocks are supplied without the centre web in some areas. Here stair blocks must be filled with a load bearing mix.

	UNITS PER m ² (ft ²)	BLOCK MASS kg/(lb)	BLOCK INFILL VOLUME m ³ (ft ³)	MASS OF WALL INCL. SOIL kg/m ² (lb/ft ²)
METRIC	13	18	0.007	370
IMPERIAL	1.2	40	0.25	76

Measure Setback diagonally, in line with face of wall.

Wall Details • allow for small variations



Some construction details. Stacked in a zig zag pattern