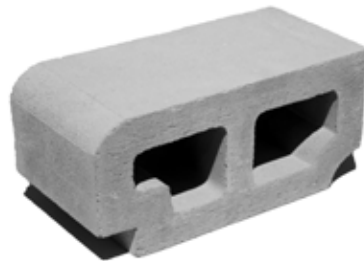


A GUIDE TO THE INSTALLATION OF TERRAFORCE 4 X 4 SEATING



4x4™ Step Block



EXAMPLES OF 4X4 STEP BLOCK SEATING



SEATING AT A SCHOOL SPORTS FIELD



STAIRWAY AND RAMP COMBINATION



BOTHA HALTE SCHOOL SEATING AND STAIRS



UNIVERSITY SEATING IN GAUTENG



COMMUNITY SEATING, SPORTS FIELD



WEDDING VENUE SEATING, WINELANDS



PLAYGROUND SEATING AND STAIRS



LONG SEATING AT SCHOOL FIELD

Installation of Terraforce 4x4 Step Blocks for Seating Arrangements

Note! Local statutory requirements or site conditions may dictate variations of the following recommendations:

- Excavate and trim to lines and grades as shown on plan or as directed. Alternatively bench to required inclination as shown on plan to allow for placement of cement stabilized back fill foundation to seating installation.
- Stockpile sandy backfill material as directed.
- Compact profiled slope as specified by engineer.
- Excavate at the toe of installation for casting of the foundation to engineer's detail, with 20 MPa concrete.
- Set out and place first row of Terraforce blocks to lines, levels and radius as shown on plan. Fill blocks as specified with concrete or cement stabilised sand.
- Place cement stabilized (Min 3%) sand backfill and compact as instructed by the engineer. Repeatedly check levels, longitudinally and across.
- Install first row of Terraforce 4x4 step blocks on a thin mortar bed. Install in groups of 4, filled with wet concrete to allow for insertion of 10/12mm reinforcing bars with overlapping lengths. Refer to engineer's specification and plan.
- Place and compact cement stabilized backfill as before. Repeat progressively row by row as work progresses.
- Cut blocks to required angles for a neat match at corners or at sharp bends (see sample illustration and photos).
- Place 50mm screed in matching color (or paving stones) behind front row of 4x4 blocks of seating area as shown on plan. Note this step may be undertaken once all the block rows have been installed.
- Install lines of access stairs with 4x4 step-blocks as shown on plan and section.
- All visible in situ concrete for screeds, wedge fillers etc, to be in matching colour and with a neat, brushed, non-slip finish.
- Supply and install subsoil drainage system where and when specified by the engineer.
- Install new rainwater channel along top edge of installation as per plan.
- For best results all work should be executed by an experienced contractor. Consult www.terraforce.com for a list of recommended Terraforce Contractors in various regions.

General Notes

Cement slurry complete seating arrangements with matching color for a uniform finish. Supply and fit railings, screen or wing walls, complementary paving or landscaping, as shown on plan. Make good in matching color, any blocks that were chipped during transport and installation. Refer to Question 30 of the Question and Answer section on **www.terraforce.com**

Notes and details shown are selected from a variety of existing installations. Ultimately the designer and his supervising agent will make the final choice.

INSTALLATION ILLUSTRATIONS - STEP BY STEP:

ILLUSTRATION 1

SEE NOTES ON ILLUSTRATION
OR REFER TO FURTHER NOTES
OR DESIGNER SPEC.

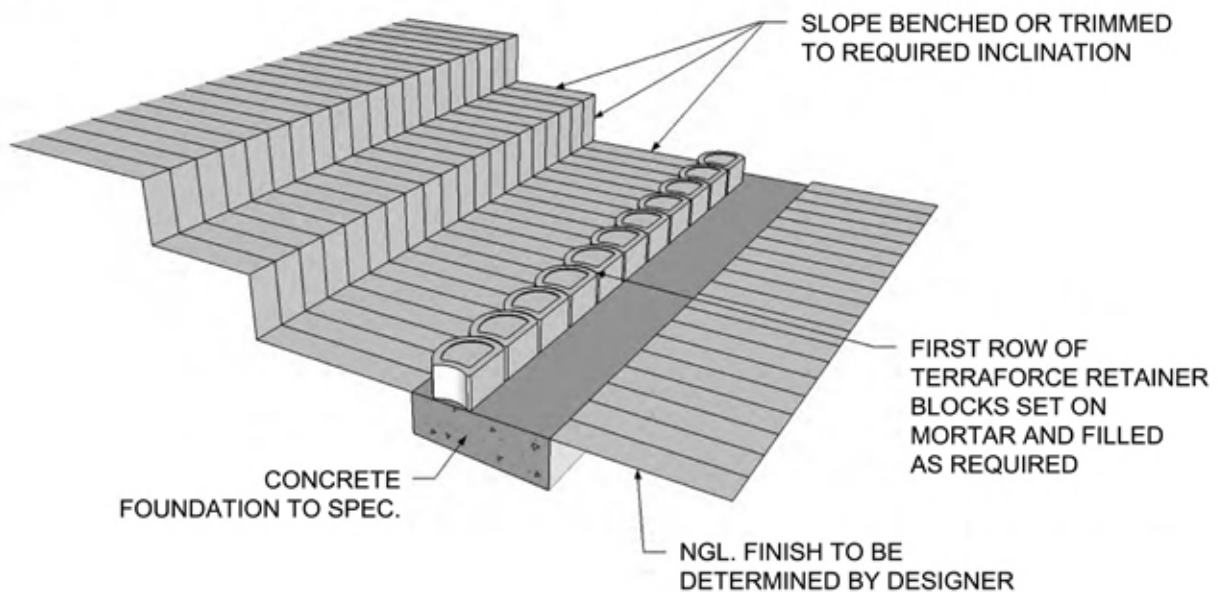


ILLUSTRATION 2

SEE NOTES ON ILLUSTRATION
OR REFER TO FURTHER NOTES
OR DESIGNER SPEC.

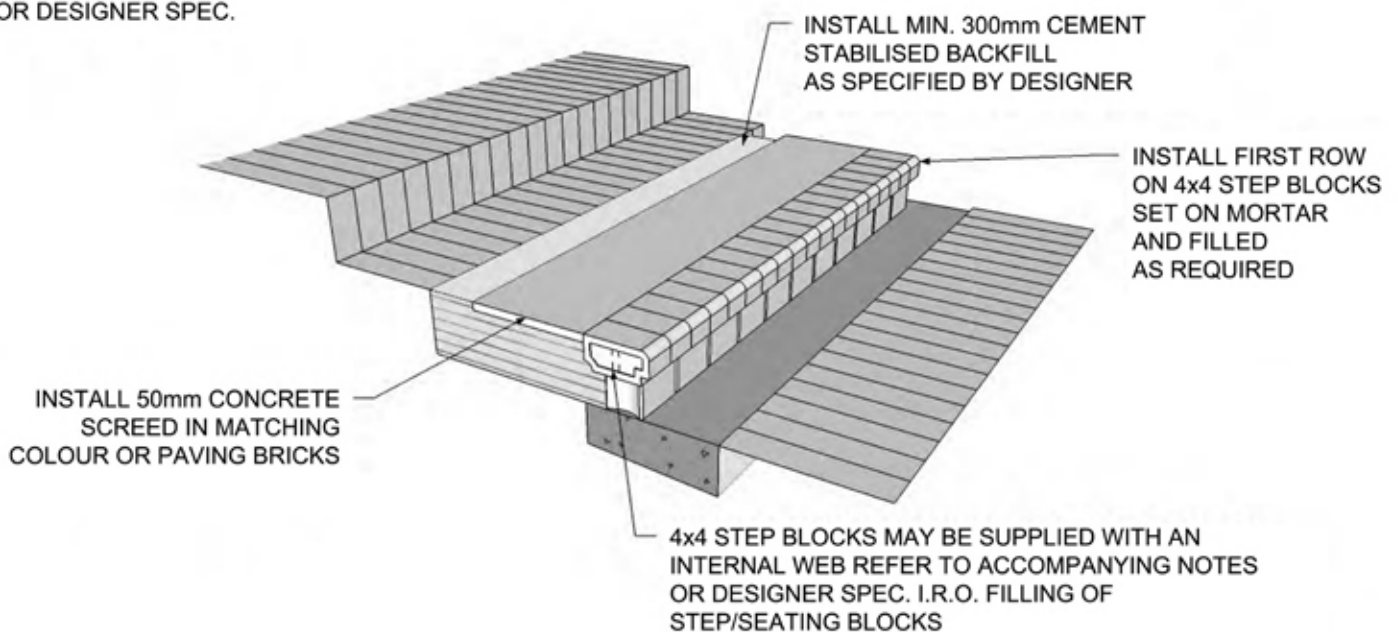
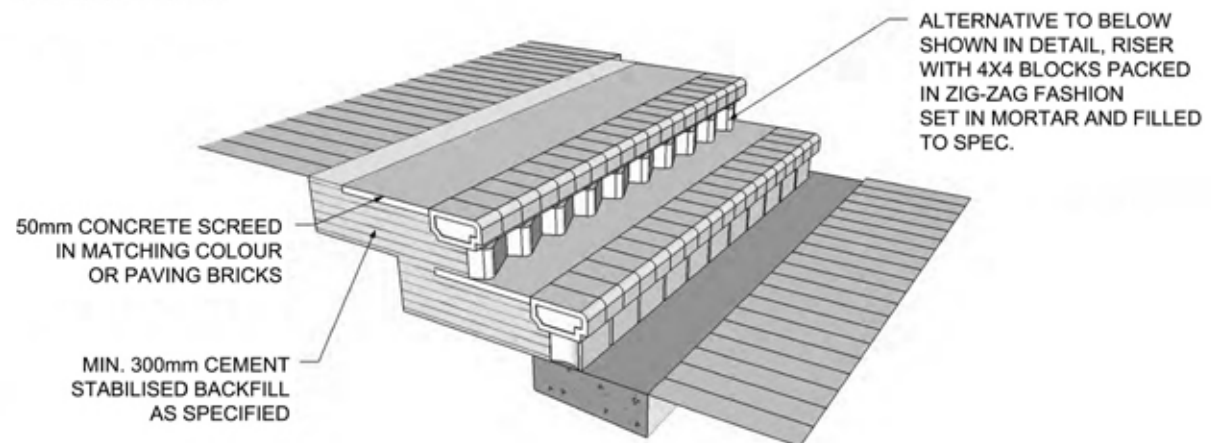


ILLUSTRATION 3

SEE NOTES ON ILLUSTRATION
OR REFER TO FURTHER NOTES
OR DESIGNER SPEC.



REFER TO ACCOMPANYING NOTES,
PHOTOS AND CROSS SECTIONS
REGARDING THE INCORPORATING
OF STAIRS INTO SEATING ARRANGEMENTS

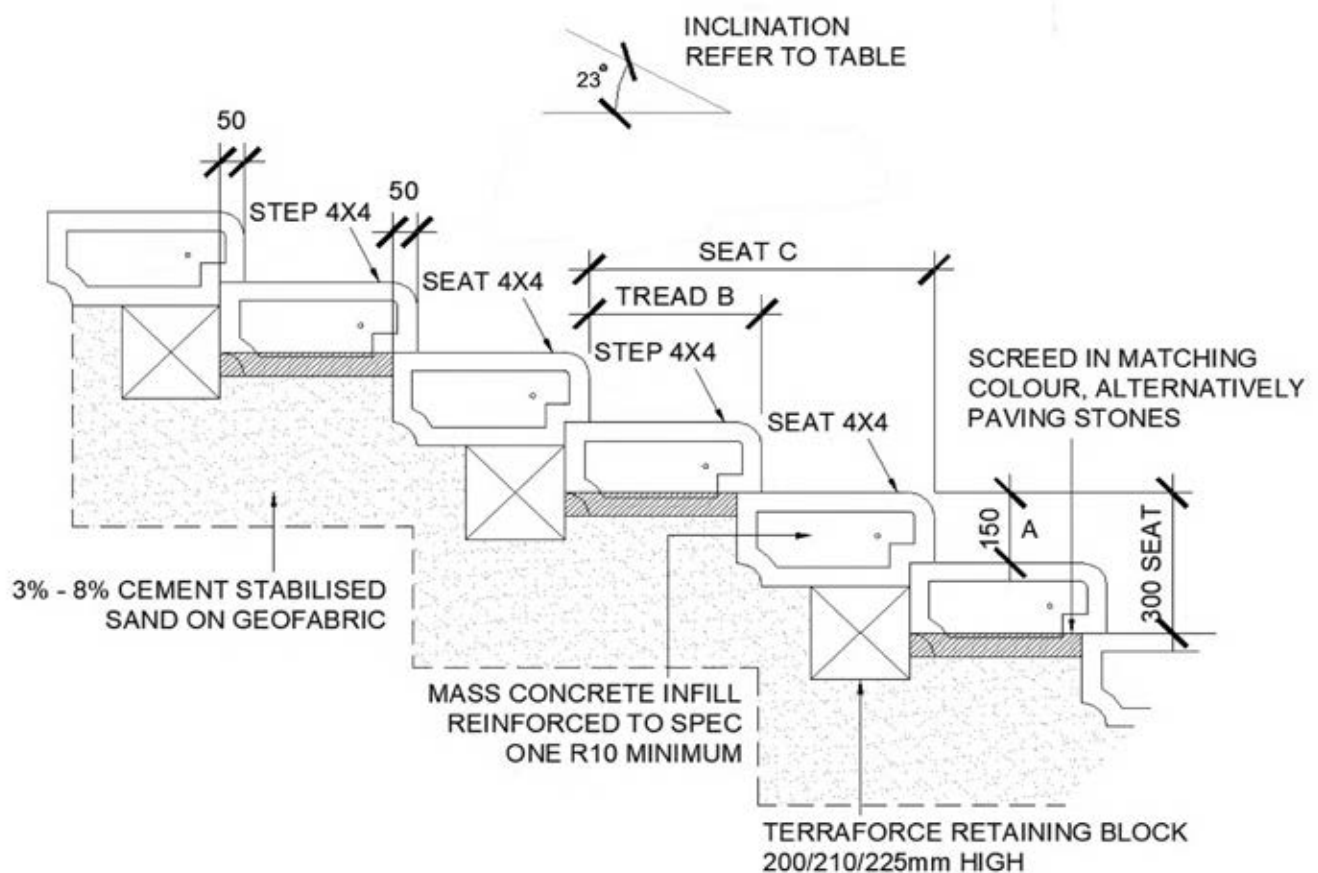


TYPICAL CROSS SECTIONS, SOME EXAMPLES. Please note these are not to scale.

CROSS SECTION 1

4x4 Step Blocks in combination with TERRAFORCE retaining blocks for seating at various inclinations

INCLINATION	RISER (mm)	TREAD (mm)	SEAT (mm)
	A	B	C
23°	150	350	700

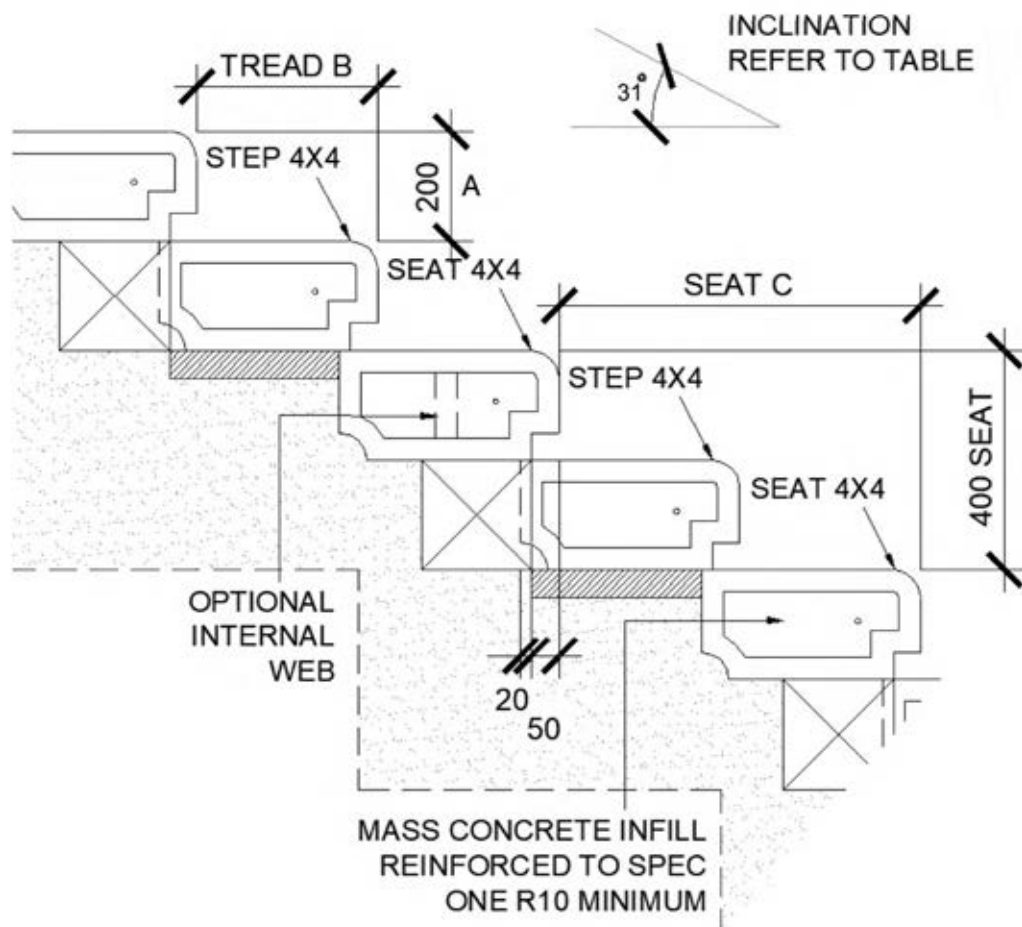


(Not to scale)

CROSS SECTION 2

4x4 Step Blocks in combination with TERRAFORCE retaining blocks for seating at various inclinations

INCLINATION	RISER (mm)	TREAD (mm)	SEAT (mm)
	A	B	C
31°	200	330	660



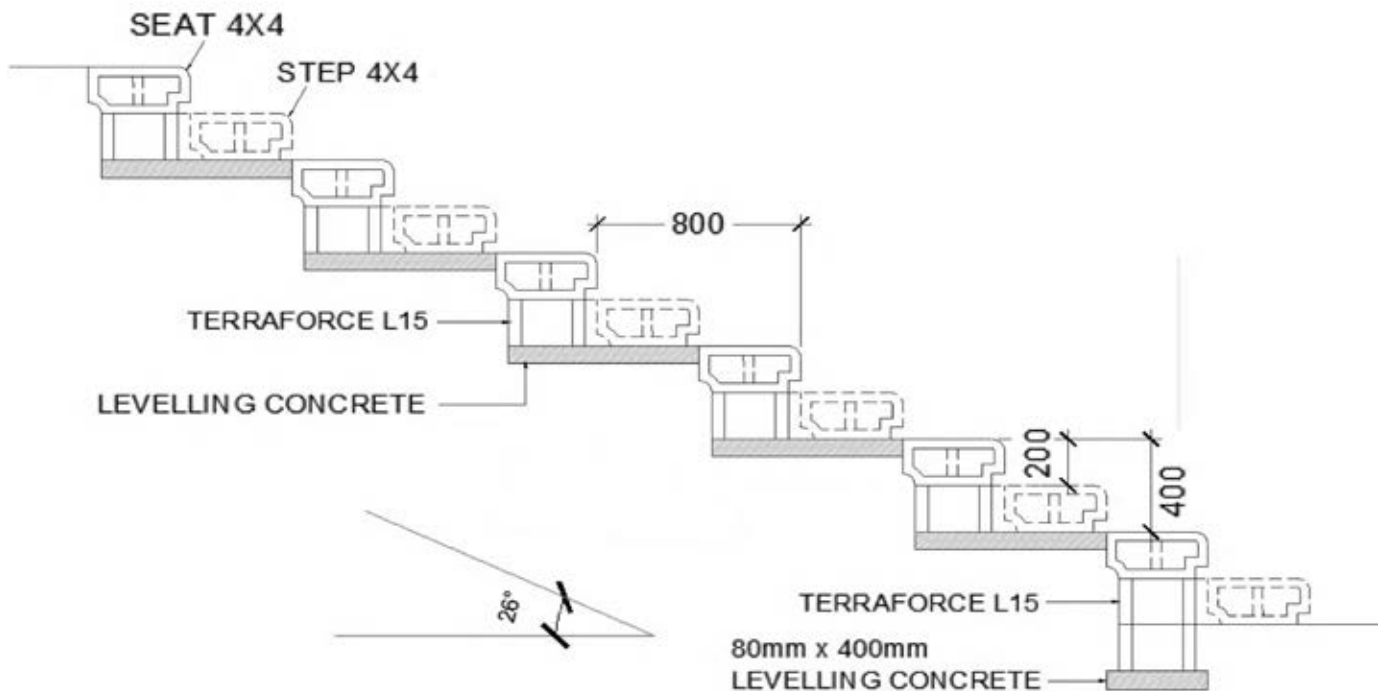
(Not to scale)

CROSS SECTION 3

DÜZCE UNIVERSITY TURKEY

4x4 Step Blocks in combination with
TERRAFORCE retaining blocks for
seating at various inclinations

INCLINATION	RISER (mm)	TREAD (mm)	SEAT (mm)
	A	B	C
26°	200	400	800



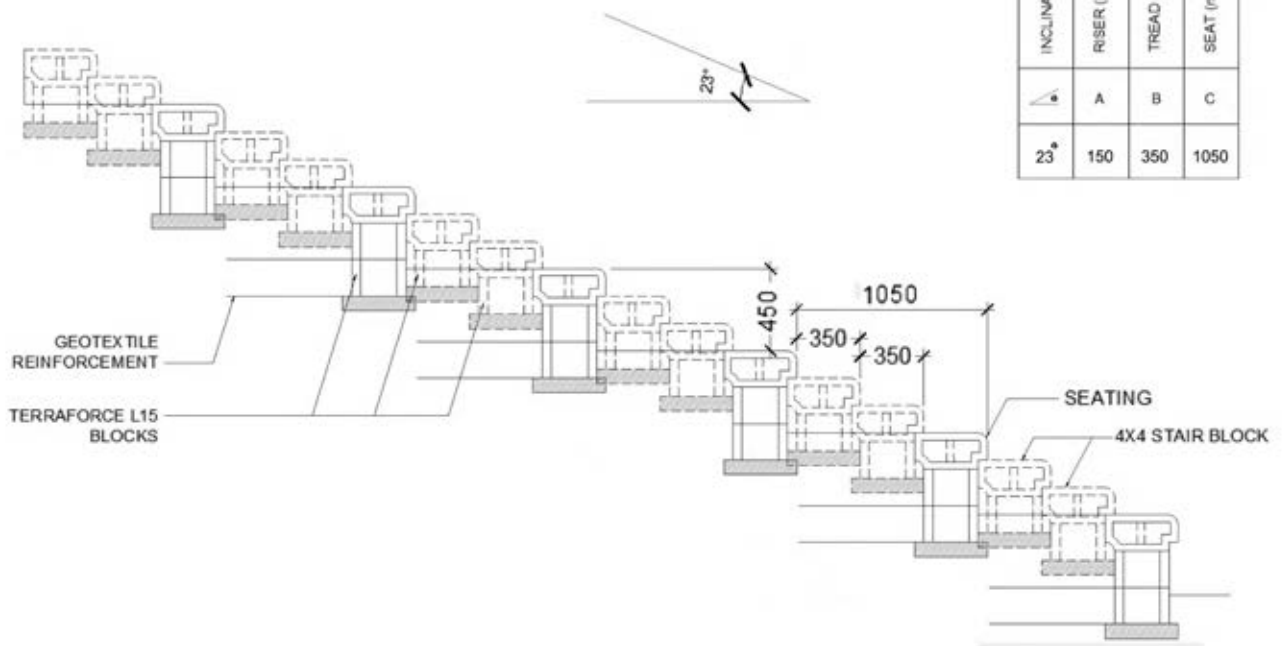
(Not to scale)

CROSS SECTION 4

AMPHITHEATRE DETAIL
SIRTE PARK - LYBIA

4x4 Step Blocks in combination with
TERRAFORCE retaining blocks for
seating at various inclinations

INCLINATION	RISER (mm)	TREAD (mm)	SEAT (mm)
	A	B	C
23°	150	350	1050

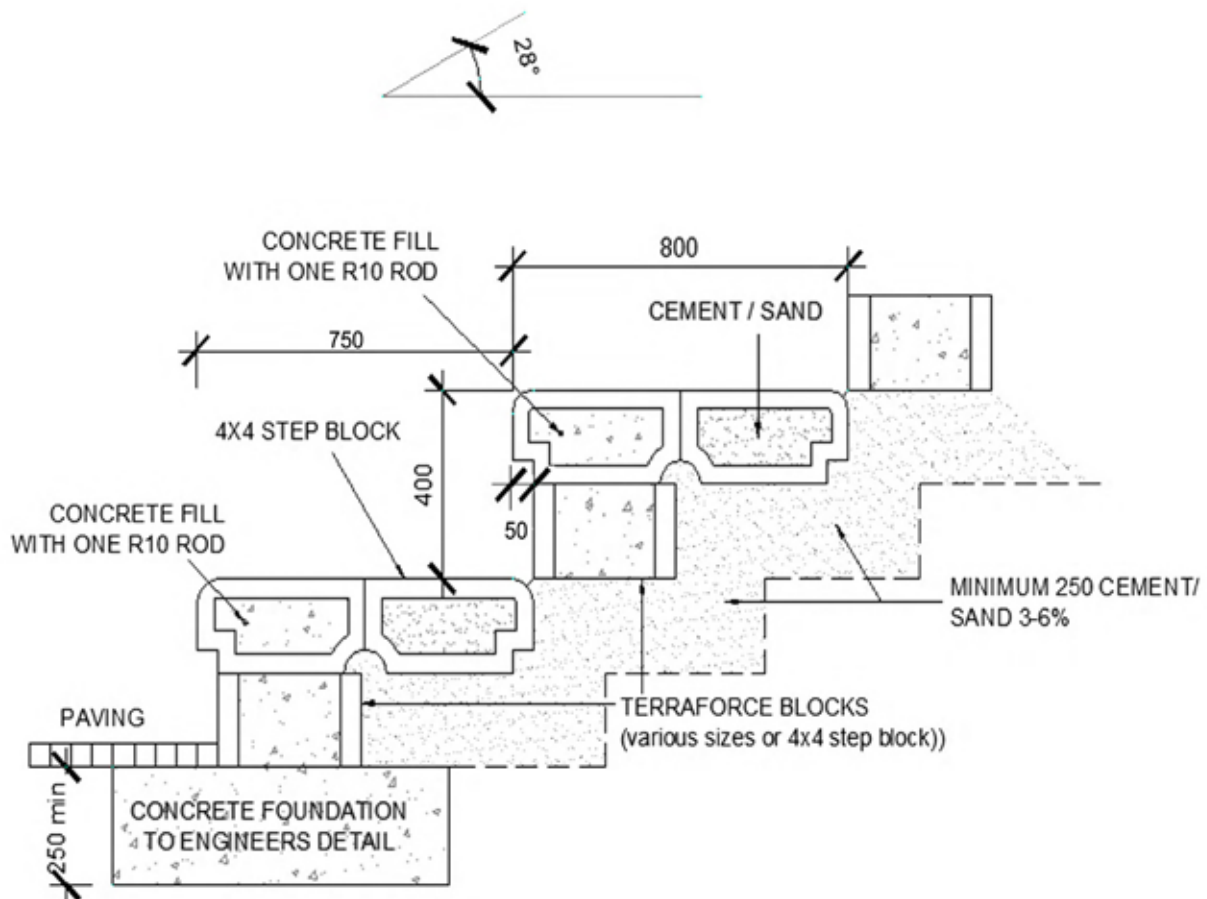


(Not to scale)

CROSS SECTION 5

4x4 Step Blocks in combination with TERRAFORCE retaining blocks for seating at various inclinations

INCLINATION	RISER (mm)	TREAD (mm)	SEAT (mm)
	A	B	C
28°	400	800	800

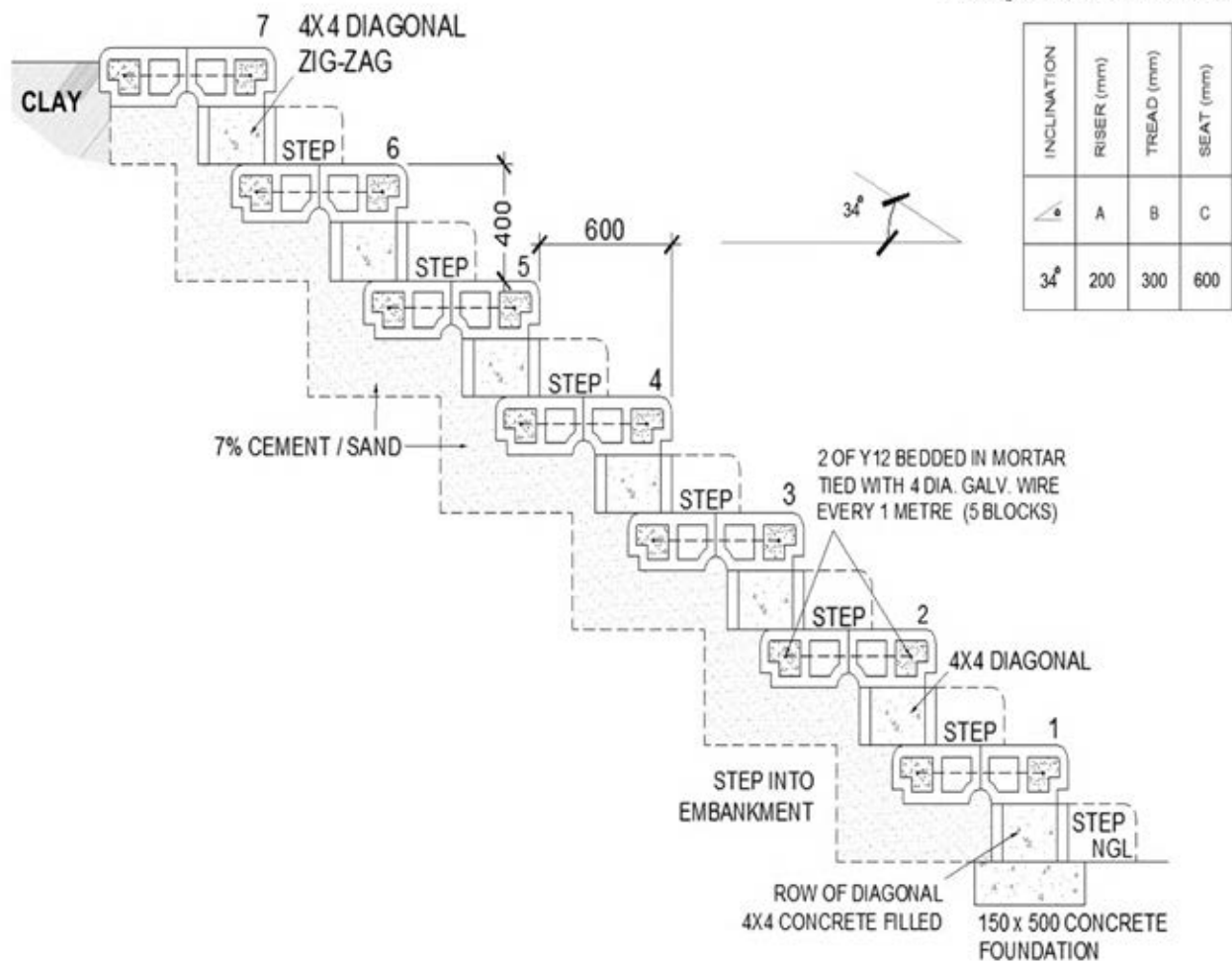


(Not to scale)

CROSS SECTION 6

RHODES SCHOOL CAPE TOWN

4x4 Step Blocks in combination with TERRAFORCE retaining blocks for seating at various inclinations

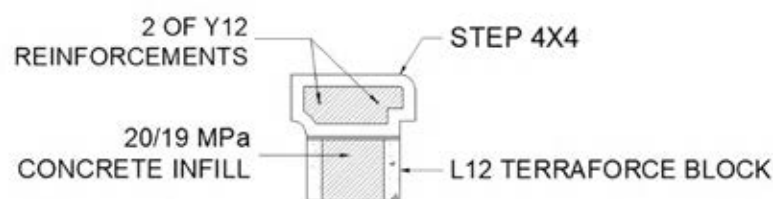


(Not to scale)

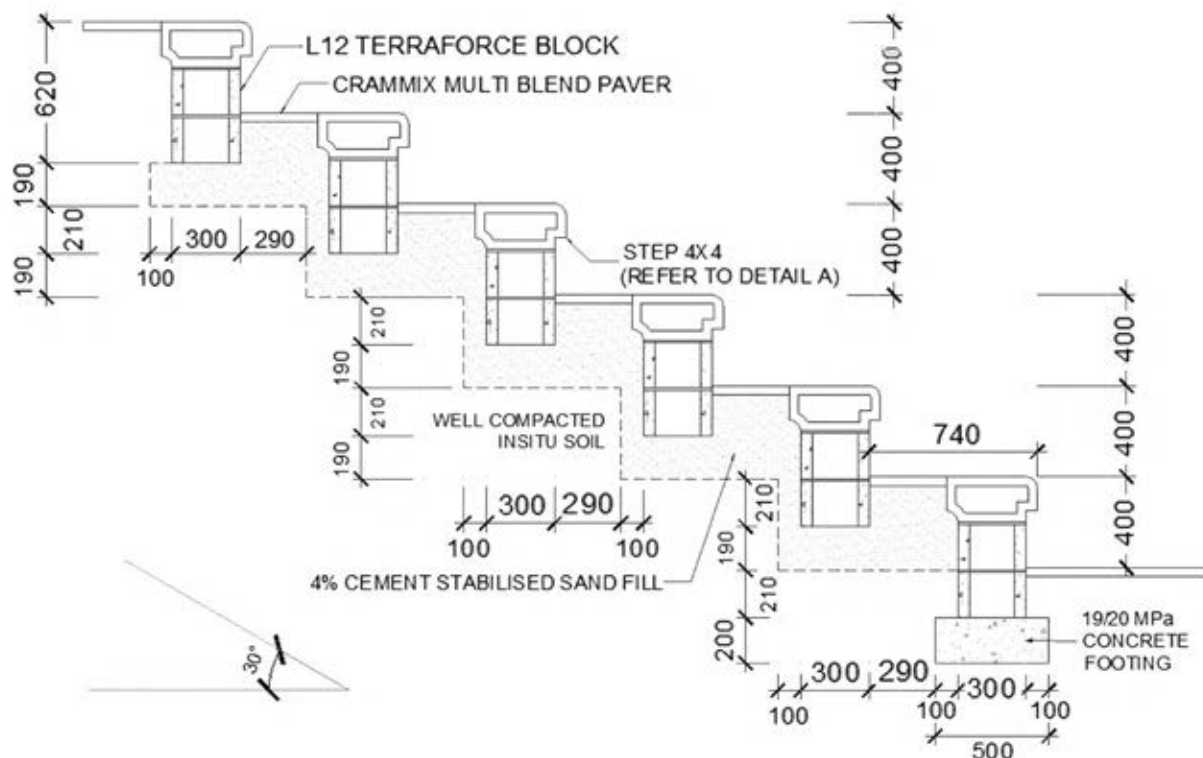
CROSS SECTION 7

4x4 Step Blocks in combination with TERRAFORCE retaining blocks for seating at various inclinations

INCLINATION	RISER (mm)	TREAD (mm)	SEAT (mm)
	A	B	C
30°	400	740	740



DETAIL A



(Not to scale)

CROSS SECTION 8

4x4 Step Blocks in combination with TERRAFORCE retaining blocks for seating at various inclinations

INCLINATION	RISER (mm)	TREAD (mm)	SEAT (mm)
	A	B	C
30°	210	400	750

750 750 750 800

TERRAFORCE 4X4 STEP BLOCK, INSTALLED ON A MORTAR BED TO CREATE EVEN RISERS, FILLED WITH CONCRETE, REINFORCED WITH ONE Y12 REINFORCING BAR. ALL VISIBLE MORTAR OR CONCRETE FACES TO BE GROUTED IN A COLOUR TO MATCH THE COLOUR OF THE BLOCKS.

TERRAFORCE 4X4 SEATING BLOCK FILLED WITH CONCRETE, REINFORCED WITH ONE Y12 REINFORCING BAR, AS SHOWN. REFER TO NOTES IN 4X4 E-BROCHURE.

TERRAFORCE L11 BLOCK FILLED WITH 5% CEMENT STABILISED SAND

45mm CONCRETE IN MATCHING COLOUR EXPANSION JOINTS AT min 1500mm c/c

CEMENT STABILISED BACKFILL MINIMUM 5% CEMENT MINIMUM 300mm THICK

EXISTING CONCRETE SLAB

NEW BRICKWALL

EXISTING BRICKWALL

300X300 AGRIC DRAIN & SLOTTED PIPE WITH OUTLETS

FILL COMPACTED TO ENGINEERS SPECIFICATIONS

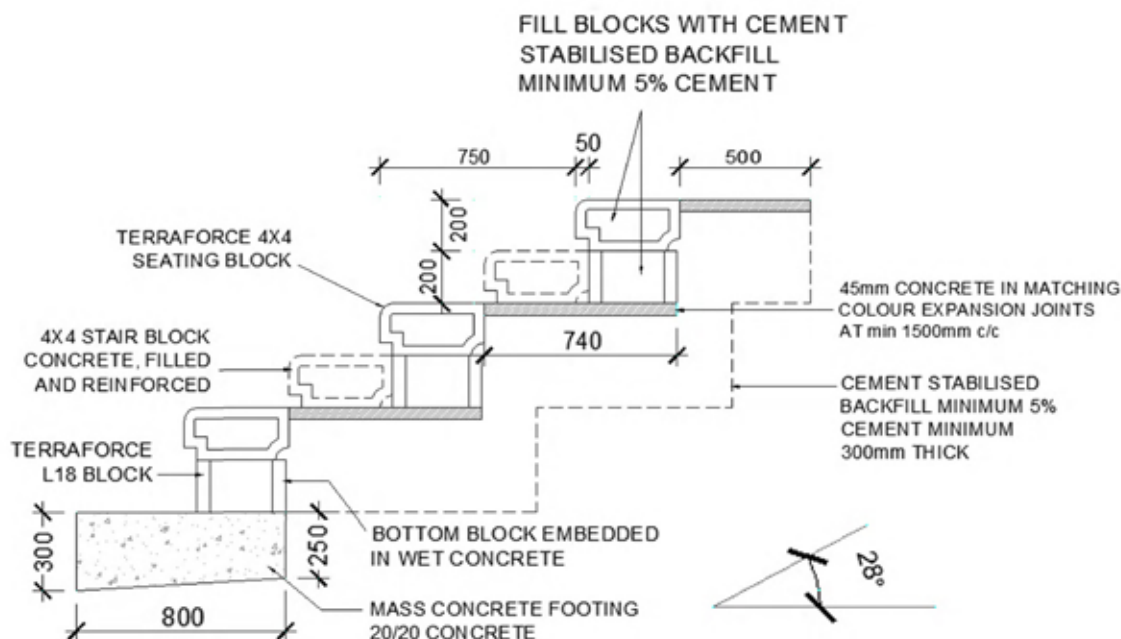
NOTE: DIMENSIONS TO BE ADAPTED TO SITE CONDITION

(Not to scale)

CROSS SECTION 9

4x4 Step Blocks in combination with TERRAFORCE retaining blocks for seating at various inclinations

INCLINATION	RISER (mm)	TREAD (mm)	SEAT (mm)
	A	B	C
28°	200	400	750



DISCLAIMER

This document has been produced by TERRAFORCE and is for the exclusive use of the nominated recipient, and is issued for the purposes of the proposed works only. TERRAFORCE accept no responsibility or liability whatsoever to use of this document by any third party.

The user shall agree to indemnify and hold TERRAFORCE CC, its members, employees and contractors harmless from all liability, damages, costs and expenses arising from or relating to your use of the guide.

SOME OPTIONS WITH THE 4X4 STEP BLOCK



LOW RETAINING



SHALLOW STAIRWAY



MEDIUM STAIRWAY



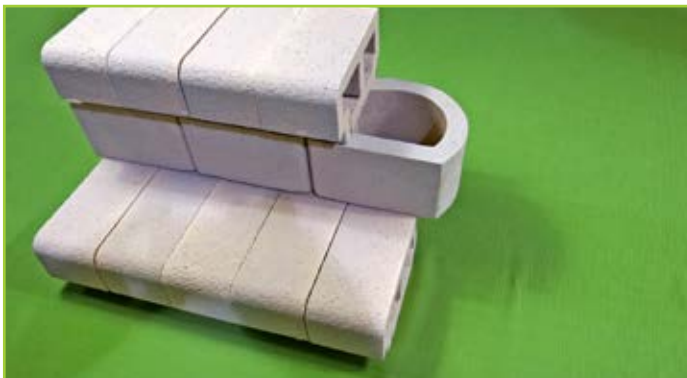
STEEP STAIRWAY



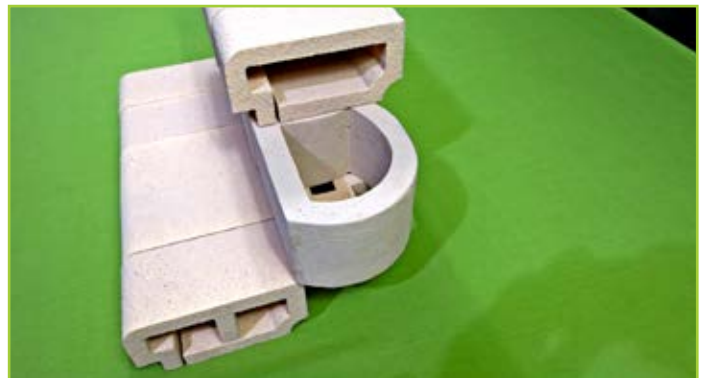
SEATING WITH 4X4 STEP BLOCK



SEATING WITH 4X4 STEP BLOCK

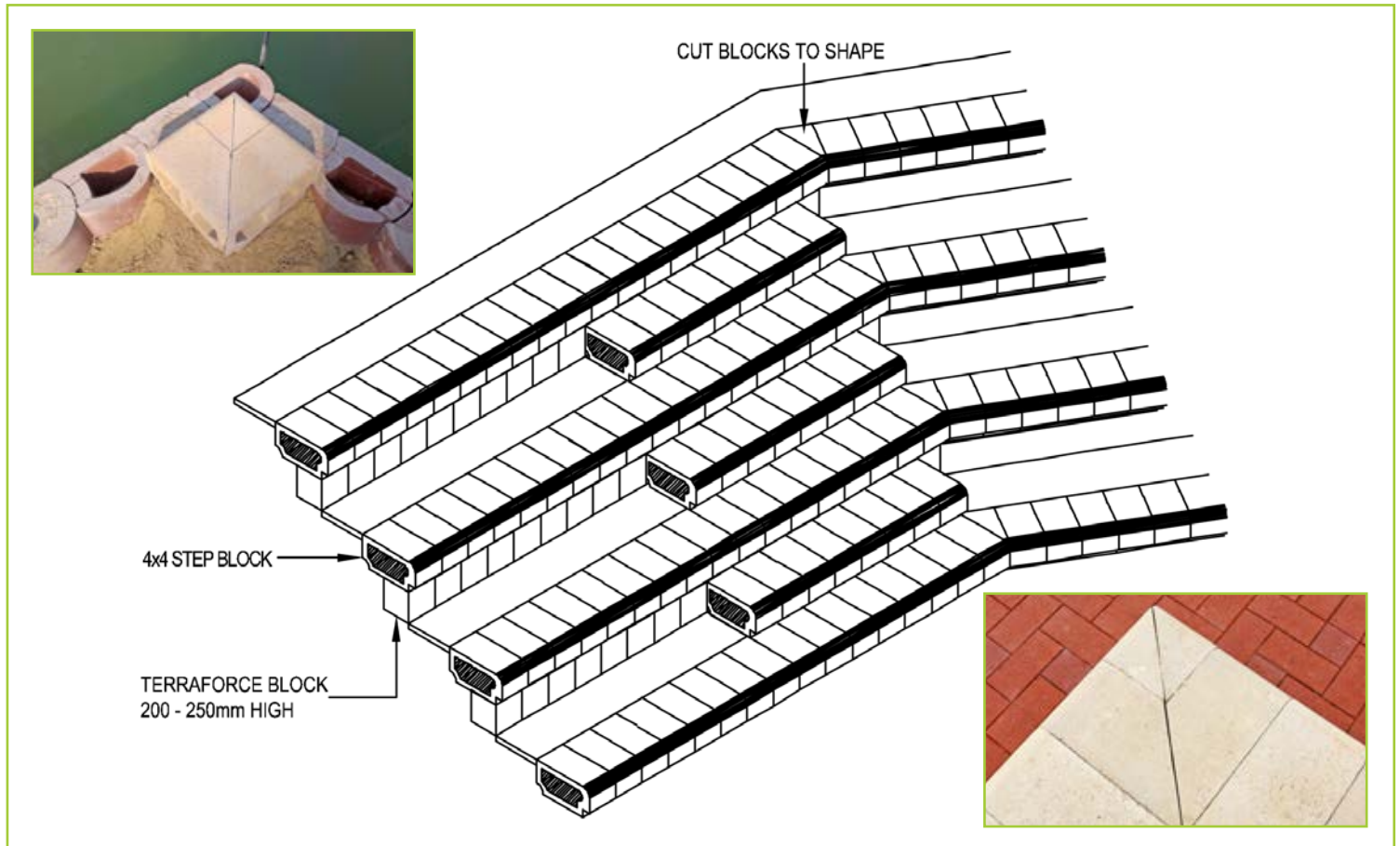


SEATING IN COMBINATION WITH TERRAFORCE L RANGE BLOCKS



P.T.O

CUTTING OF THE 4X4 STEP BLOCK



EXAMPLES WITH THE 4X4 STEP BLOCK (SEATING)



RESIDENTIAL SEATING ARENA, EUROPE



VIEW POINT SEATING ARENA



CLOSE UP OF BLOCKS CUT TO SHAPE



ATHLECTICS STADIUM SEATING



ROUND SCHOOL SEATING ARENA



SEATING ARENA WITH NIGHT LIGHTS, QATAR



SCHOOL HOCKEY SEATING



LARGE UNIVERSITY SEATING ARENA

MORE EXAMPLES



RESIDENTIAL SEATING, EUROPE



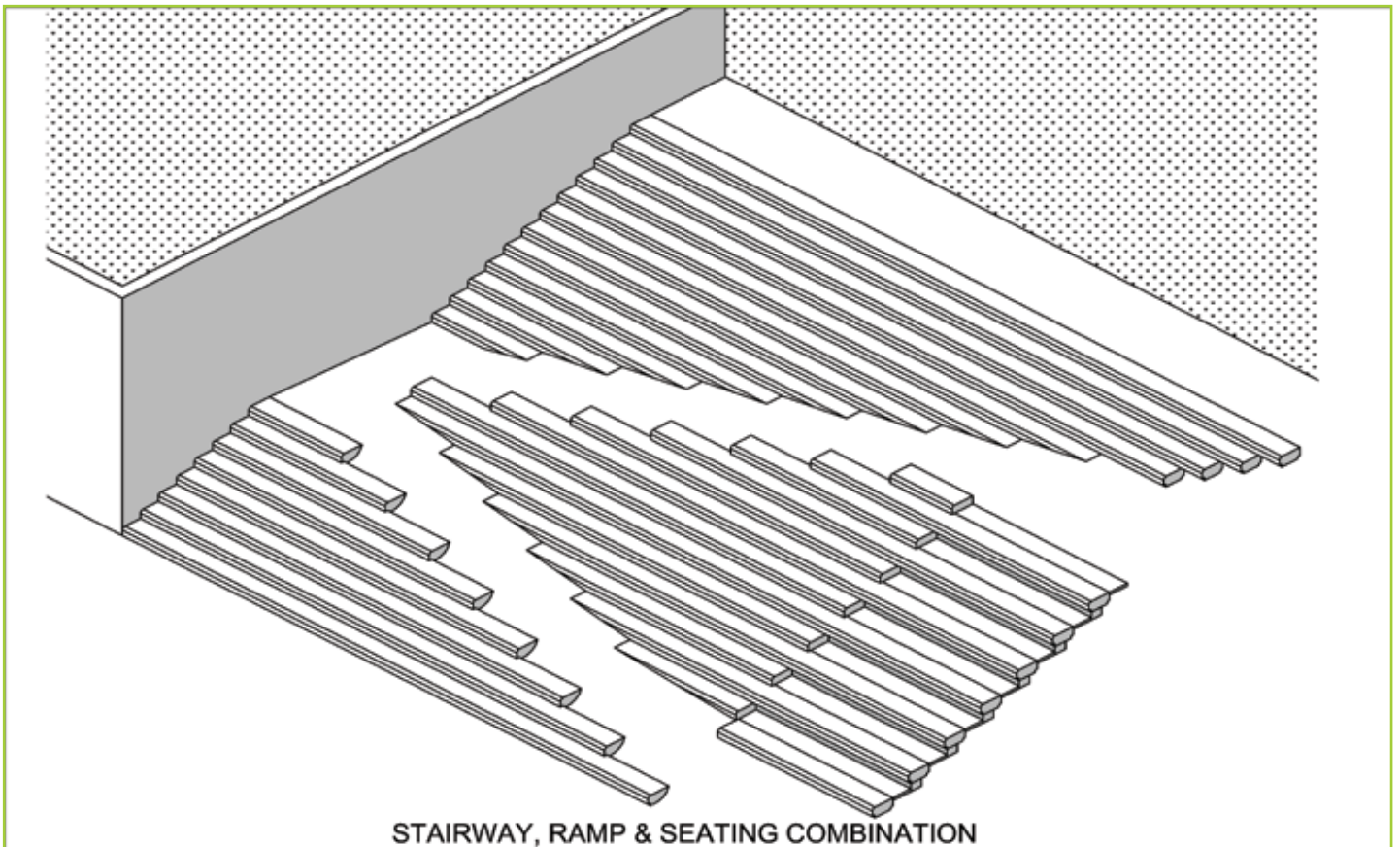
SWIMMING POOL SEATING, JHB, GAUTENG



PUBLIC SEATING, EUROPE



PUBLIC SEATING, GAUTENG



STAIRWAY, RAMP & SEATING COMBINATION