TERRAFORCE RECOMMENDED SPECIFICATIONS		
Block Dimensions – Length, width, height, blocks/m², Block mass/kg, block infill volume/m³, constructed mass kg/m² and block wall thickness – please refer to block spec sheets at www.terraforce.com		
DESCRIPTION	**VALUE**	**COMPLIES WITH**
21 day cube strength of concrete (uncured))	25 MPa (min)	1
Storage time before delivery	21 days	1
Crushing strength of blocks at 21 days: Under full platen contact Under simulated in-situ point loading	 11-13 MPa (min) 8 MPa (min)	 1+2 1
Coefficient of friction for interblock sliding when used in combination with a safety factor of 1.3 for stability against sliding • Value at 95% confidence level	0.54	1+5
Block dimensional variations, length, width, height	± 3 mm	1+2+3
Block mass variation	Not less than 95% of spec mass	2
Block – Geogrid connection testing (pullout resistance)	Refer to test report	6+7
Appearance and repairs – **click here** for more information – see question 30 of the Q&A page	Complies with	1+2+4

REFERENCES

Please note that 1, 4, 5, 6 and 7 can be downloaded from the http://www.terraforce.com/downloads.html as PDF files.

1. Terraforce/Hawkins Hawkins & Osborne. Laboratory Testing Report and Design Manual. 1991
   - Block on block friction testing. Pages 118-120
   - Block crushing tests. Pages 116-118
2. SANS 508:2008 Edition 1 Pages 5-6
3. ASTM Standard Specification for Segmental Retaining walls Pages 2
4. Terraforce Design and Installation Manual. 1995. Updated 2009.
5. Terraforce Block Interface Shear Capacity Testing. (Bathurst, Jarrett and Associates. Ontario 1998)
6. Terraforce Block-Geogrid connection Testing. (Bathurst, Jarrett and Associates. Ontario 1998)
7. Terraforce L18 Evaluation Report ER.5448 (I.C.B.O Evaluation Service, Inc. California 2002)

PARTICULAR SPECIFICATION

PA CONCRETE RETAINING BLOCK WALLS / GRAVITY / COMPOSITE RETAINING WALLS

CONTENTS

PA 01 SCOPE

This is a Particular Specification and covers the erection of gravity / composite / precast block retaining walls in terms of the latest amended edition of the SANS 508/2008.

PA 02 TYPE OF PRECAST RETAINING BLOCK

The block shall comply with the minimum specifications as stated in the table below and in the SANS 508:2008, and shall also be erected in accordance with the dimensions shown on the design drawings.

21 day crushing strength of blocks:

- Under full platen contact : Avg 13MPa with a minimum of 11MPa
- Under simulated in-situ point loading: 8 MPa (minimum)

Coefficient of friction for interlocking sliding: 0,54 (Value at 95%)

Block dimensional variations: (length, width and height) Approx 3mm

Block mass variation: Not less than 95% of specified mass.

Tests and associated results, as conducted by an approved authority / laboratory, shall be made available to the Employer or his Agent for approval, e.g.:

- 21 day crushing strength (As specified above)
- Determination of the coefficient of friction for interlocking and sliding between blocks
- Representative pullout resistance (Block and geogrid connection test / Determination of pullout resistance of various block types)

PA 03 MATERIALS

Apart from the specification of concrete mentioned hereafter, all materials shall comply with SANS 508:2008 specifications.

PA 03.1 Concrete

Concrete used for gravity retaining wall footings shall comply with the requirements of SABS 1200 G.

PA 04 CLEARING OF RETAINING WALL AREA

Strip clearing for the retaining wall shall be carried out in accordance with SABS 1200 C.

PA 05 INSTALLATION

The gravity / composite retaining wall shall be installed at the positions indicated on the drawings or pointed out on site by the Employer or his Agent and shall be erected in accordance with the specifications noted herein, details as per the approved detail design drawings and per the manufacturers specifications and / or installation instructions.

PA 06 PROFESSIONAL ENGINEER /REGISTERED PERSON / TECHNOLOGIST

All walls exceeding 1200mm in height above the natural ground level, or as determined by the National Building Regulations at the time and /or the applicable Local Authority, shall be designed, and overseen by a Professional registered Engineer or Technologist.

Proof of valid Professional Indemnity Insurance shall be submitted with the design for approval by the Employer or his Agent / Engineer.

PA 07 GEOTECHNICAL REPORT

The Employer shall be responsible to provide Tenderers with a suitable geotechnical report during the design period and the cost thereof shall be borne by the Employer or his Agent.

PA 08 GENERAL REQUIREMENTS AND TOLERANCES

The completed retaining wall shall be true to the setting out line and blocks shall be installed horizontally with the use of a line and spirit level (3 blocks will be levelled simitantiously in lenght and in depth), unless otherwise stated.

The height of the lower block above the final ground level shall not vary by more than 100 mm from that shown on the approve detail drawings.

The Contractor shall, on completion of each section of walling, remove all cut-offs and other loose material so as to leave the wall with a neat and finished appearance.

PA 09 MEASUREMENT AND PAYMENT

Various items shall be listed. The unit of measurement shall be as specified.

Various items shall be listed as given below. The tendered rates shall include full compensation for the necessary plant, labour and material to execute the works as listed, including the spoil of surplus material on site and control density testing. The tenderer shall submit a design of the retaining wall for approval by a Registered Person (Professional Engineer and /or Technologist).

1) Site clearance and the removal of topsoil **Unit: m²**

2) Excavate in all materials and dispose of surplus material (on site) **Unit: m³**

3) Concrete foundation **Unit: m³**

4) Approved gravity / composite retaining wall (Complete as per the approved detail drawings as supplied by the Registered Person (Professional Engineer/Technologist) including sand or gravel drainage layer, geotextile, concrete keys, concrete, sand or gravel infill in blocks, or any other item, deemed necessary or specified by the Contractor's engineer, to successfully complete the operation. **Unit: m²**

5) Subsurface drain **Unit: m**

6) Subsurface drain outlets (Weep holes) including geotextile capped ends **Unit: No**

7) Approved fill material (G7) compacted to 100% MOD AAHSTO density (for sand) **Unit: m³**

8) Steel reinforcing **Unit: Sum**

9) Density test / Control tests **Unit: Sum**