

Construction Sequence for TensarTech TW3 Wall System with moulded connector



Introduction

The TensarTech TW3 Wall System has been developed to provide engineers, architects and builders with an attractive and economical retaining wall package. The system, comprising mortarless concrete block facing and Tensar geogrid reinforcement is one of a range of retaining wall options available from Tensar International. Where applicable, the Contractor shall ensure that the installation fully complies with CDM Regulations 2007 and should refer to the Designer's Risk Assessment and COSHH statements.

Construction Sequence

STEP 1 - PREPARATION

Excavate for the formation and levelling strip according to the design and layout of the wall. The TensarTech TW3 wall system has a nominal face angle of 89.6° (1:128) which should be taken into consideration when setting the wall out.

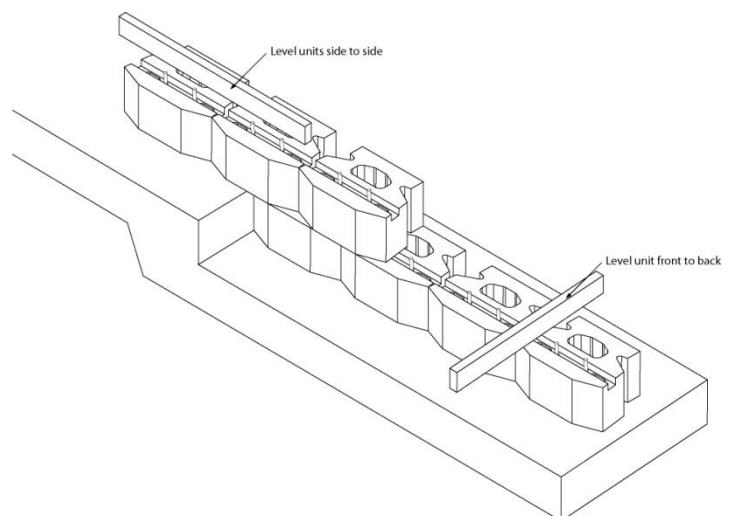
Concrete levelling pad should be cast in situ concrete with typical dimensions of 600mm wide x 150mm high. Blocks are delivered to site on pallets with 45 number blocks per pallet, the nominal weight of each pallet is 1760Kgs

The top of the levelling pad would normally be set a minimum of 450mm below finished ground level or to the level required by the design.

STEP 2 - INSTALLING THE BASE COURSE

The first course is critical for accurate and acceptable construction.

Bed the first course of TW3 blocks side by side on the levelling pad setting pinholes in adjoining blocks 305mm centre to centre, on a cement:sand mortar (1:3 ratio) ensuring that the top of the block is uppermost. The top of the block has continuous grooved recess and two pin holes. A lifting tool is available from Tensar to assist in the placing and handling of the blocks.

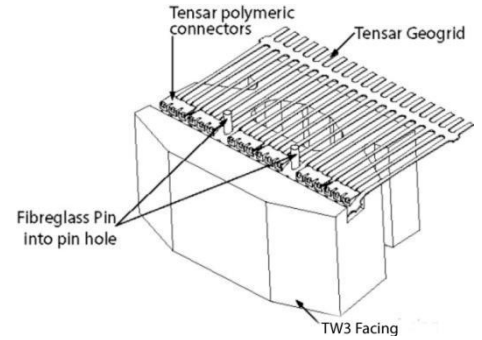


Ensure that the blocks are level front to back, side to side and to the correct alignment. Align the blocks with a string line placed on the back of the block, or for curved walls to the appropriate radius, but using the back of the block as the datum.

Allow the mortar bed to cure before laying additional courses.

STEP 3 - INSERTING THE INTERLOCKING PINS

Place a pair of TW3 fibreglass pins into the pinholes. This facing block is designed for use with the Tensar polymeric connector and has only two holes forming a finished wall face at a nominal face angle of 89.6° (1:128).

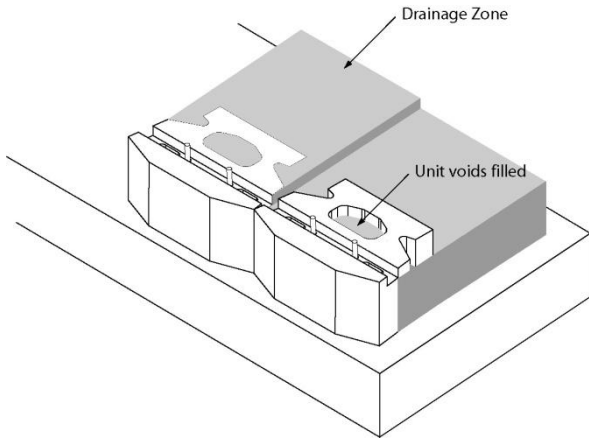


STEP 4 - INSTALLATION OF DRAINAGE MATERIAL AND BACKFILL

Fill all voids inbetween and immediately behind the TW3 blocks with an angular drainage medium hand tamped to avoid settlement. This granular fill material to fill all voids must be a crushed coarse aggregate 4/20mm in accordance with BS EN 12620 : 2002. Pea gravel or other rounded aggregates must not be used.

The drainage zone should extend a minimum of 300mm behind the TW3 blocks.

Approved backfill according to the specification may then be placed and compacted in layers corresponding with the height of the TW3 blocks, (200 mm) and to the requirements of the design.



Care should be taken to avoid contact with the facing blocks by any of the compaction plant and the following restrictions should apply:

All construction plant, including compaction equipment with a mass exceeding 1000kg should be kept at least 2m from the face of the wall. Compaction plant within 2m of the wall should be restricted to vibrating rollers having a mass per metre width not exceeding 1300kg or plate compactors with a mass less than 1000kg

Compaction should always commence nearest the facing blocks working away towards the free end of the geogrid.

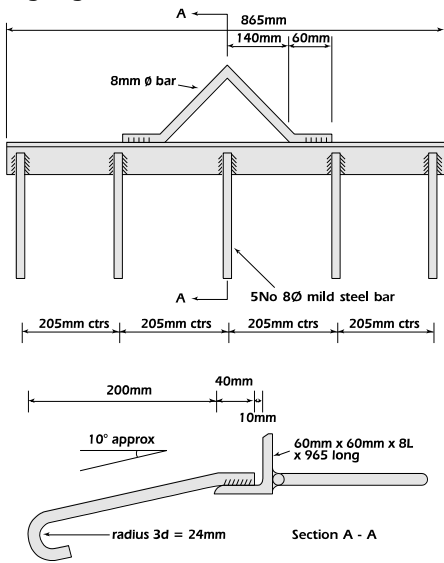


STEP 5 - INSTALLATION OF TENSAR GEOGRID AND ADDITIONAL COURSES

The specified type of geogrid is to be incorporated at the locations specified in the design Ensure that the compacted fill is generally level to receive the geogrid. Sweep the blocks clean to remove all debris.

A suitable length of Tensar uniaxial geogrid is cut from the roll and any protruding ribs trimmed back to the transverse bar. When using lighter grades of Tensar uniaxial geogrid the ribs can be trimmed back to within 3cm - 4cm from the transverse bar. Place the prepared end of the geogrid over the rebate in the block and locate the blue moulded connectors around the transverse bar. Ensure that a connector covers each aperture of the geogrid. The connectors may be split where necessary and trimmed to fit around the pin in the recess.

Please note that when constructing with the stiffer Tensar uniaxial geogrids it may be necessary to cut the transverse bar locally around the fibreglass pins in order for it to sit neatly in the recess. Position the assembly neatly into the rebate and push down firmly. The next course of blocks is placed over the fibreglass pins, locating the kidney-shaped recesses over the pins taking care not to disturb the geogrid and connector in the block below. Repeat this procedure for the whole course ensuring that adjacent lengths of geogrid are abutted at the wall face



Tensioning Beam

The facing block is centred over underlying block and is then pushed towards the front of the structure until it makes full contact with both pins. During construction it will be necessary to regularly check and correct both horizontal and vertical alignment. The line and level of the wall overall should be checked every 3rd course. Any adjustment necessary may be made using ribs cut from the geogrid or approved shims, placed in between blocks.

The geogrid should be lightly tensioned using the tensioning beam so that the moulded geogrid connectors are up against the rear of the rebate. The backfill is placed by mechanical plant, with an opening bucket, such that it causes the fill to cover the geogrid in a uniform manner.

Repeat steps 3 and 4 to construct the wall to the required height

STEP 6 - INSTALLATION OF PROPRIETY CORNERS AND TW3 CAPS

Propriety corners are available for 90° corners. The corner is textured on two faces which can be reversed to provide left and right handed blocks. The corners blocks are bonded in place using two beads of the adhesive. These corner blocks can also be used to form the vertical stop end face at the top of stepped walls.

Complete the wall with TW3 caps. Sweep the wall clean to remove debris. Place the block over the pins in the underlying blocks on a bed of four spots of adhesive (Type = Cementitious adhesive for all weather application) then push forward onto the pin. Make minor adjustments to the alignment as necessary.

Notes

1. The Contractor must fully assess the safety risk associated with working at height and where appropriate install the necessary temporary edge protection.
2. The contractor is responsible for checking wall geometry during construction and taking all necessary actions to ensure that wall tolerance is met in accordance with Tensar recommendations.
3. Please refer to Tensar International Limited if more specific advice is required.

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