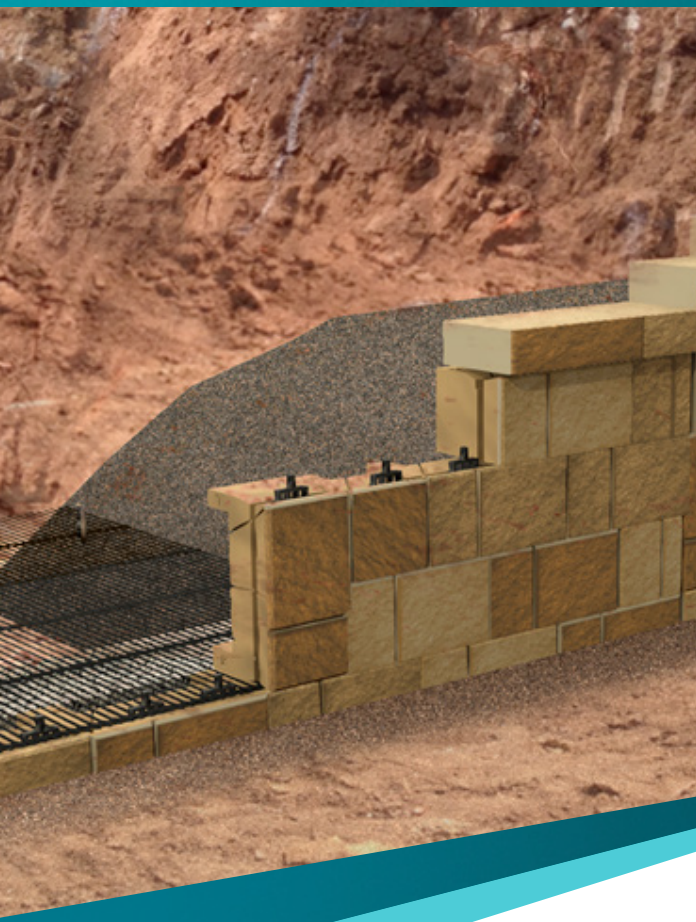
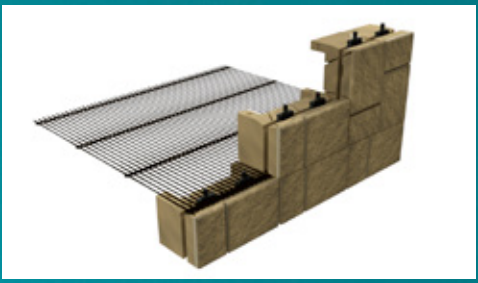
OLYMPIA®
RETAINING WALL SYSTEMS

INSTALLATION GUIDE



Tensar®



Introduction

The Olympia® Retaining Wall Systems from Tensar International Corporation (Tensar) offer superior and cost-effective solutions for all of your retaining wall needs. This installation guide provides general guidance to assist in the construction of Olympia Retaining Walls in a wide variety of applications.

THE CONNECTION YOU CAN COUNT ON®

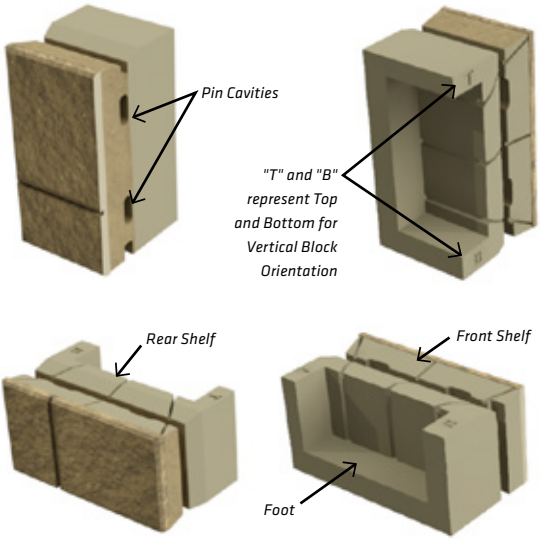
Unlike other segmental retaining wall (SRW) systems, Olympia Walls incorporate a positive, mechanical connection between the wall face and the Tensar® Geogrid, reinforcement providing unsurpassed structural integrity. It's this positive, mechanical connection that greatly minimizes the chance of wall failure, even under the most severe conditions. Only Olympia Walls provide the wall designer with **endless creative pattern options from a single block**.

ENDLESS DESIGN OPTIONS

Olympia allows the designer freedom in selecting stacking and bond patterns. Multiple colors allow rich aesthetics without the need for custom-sized small or vertical blocks. For more information, contact Tensar at **800-TENSAR-1** or **www.TensarCorp.com**. Units are locally available in a wide variety of colors, textures and facing options.

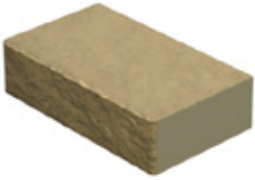
Units & Connectors

With positive geogrid connectors in both horizontal and vertical configurations, Olympia® Units are designed for a variety of applications.

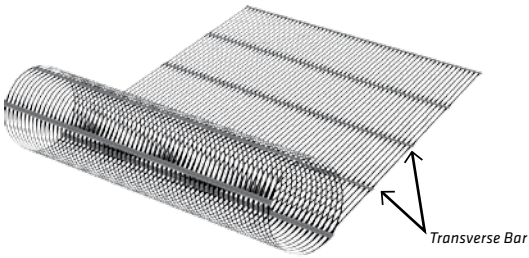


Standard Units - Blocks may be oriented Horizontally or Vertically
8"h 16"w x 9"d nom. / 65 lbs

Olympia Connectors



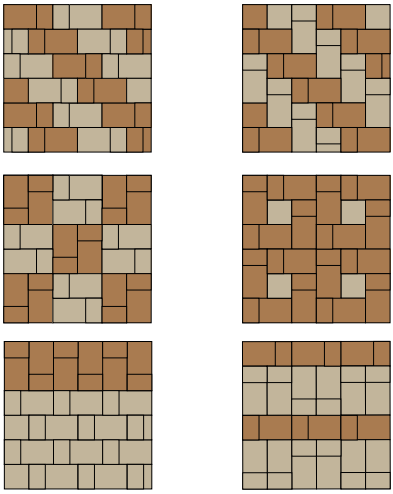
Cap Units
4"h x 18"w x 11"d nom./40 lbs



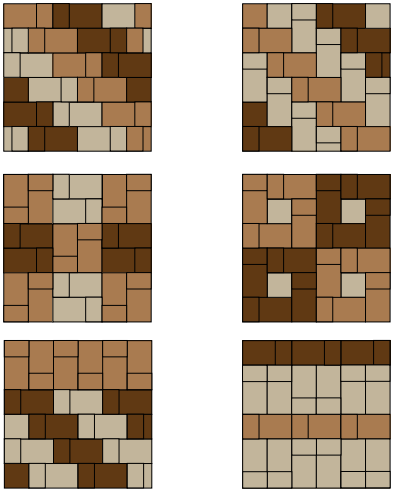
Tensar® Uniaxial (UX) Geogrids

Block Patterns

Units are locally available in a wide variety of colors, textures and facing options. The combination of patterns is limited only by your imagination.



Limited Sampling of 2 Color Block Patterns



Limited Sampling of 3 Color Block Patterns

Olympia® Walls incorporate a positive, mechanical connection between the wall face and the Tensar® Geogrid reinforcement, providing unsurpassed structural integrity.

Standard Installation Procedures

The following steps provide general guidelines for installing an Olympia® Wall. If you require more detailed information, please refer to the project's installation instructions and drawings within the contract bid documents.

Step 1:
PRECONSTRUCTION PREPARATION

It's important to become familiar with the components of the Olympia Systems prior to the start of construction. Below is a list of these components as well as the tools needed to construct a standard Olympia Wall.

Olympia Components:

- Olympia Block
- Olympia Connectors
- Tensar Geogrid

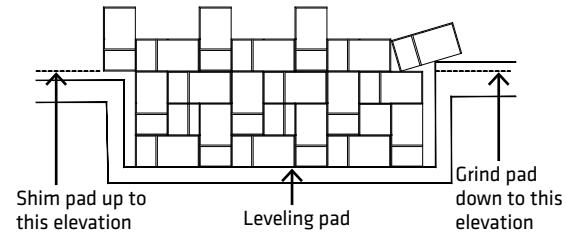
Suggested tools for installation:

- Dead blow hammer
- 2 to 4-ft level
- Utility saw and/or grinder
- Masonry string and chalk line
- Pitchfork (for removing slack from geogrid)
- Shovels
- Compaction equipment
- Rubber mallet

Step 2:
PREPARE THE LEVELING PAD

Prepare the subgrade by excavating vertically to plan elevation and horizontally to design geogrid lengths. If stockpiling excavated material for reinforced fill, remove all surface vegetation and debris from the excavated material. Start the leveling pad at the lowest elevation of the wall. Level the prepared base with 6 in. of unreinforced concrete or well-compacted granular fill (gravel, road base, or 3/4 in. minus [13–20 mm] crushed stone). The leveling pad is typically 12 in. wider than the Olympia Unit, 6 in. in front and behind the block. The contractor should locate the leveling pad to account for wall curves and wall batter. Compact the well-graded stone in accordance with the project plans and specifications.

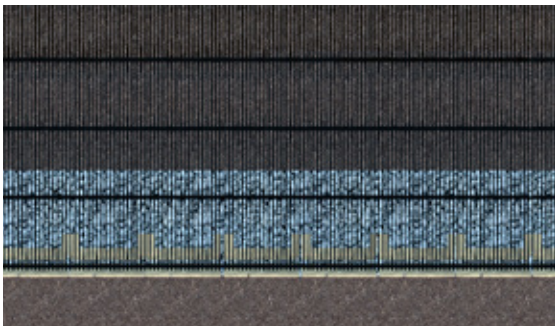
Steps in the leveling pad are required to change elevation. It is important that the height of the step is equal to the height of the number of unit courses. Aggregate leveling pads are generally overbuilt and should be carefully trimmed down to meet the proper elevation. If a concrete leveling pad is used, it is important to have the step heights match the Olympia unit's height exactly. If not, grinding and/or shimming may be required. Use a thin set masonry mortar to make up for variations or follow the recommendations for shimming between block courses to account for minor variations.



By coexisting with both nature and industry, Olympia® Walls combine creativity with functionality, providing the ideal solution for any situation.

Step 3:
INSTALL THE BASE COURSE

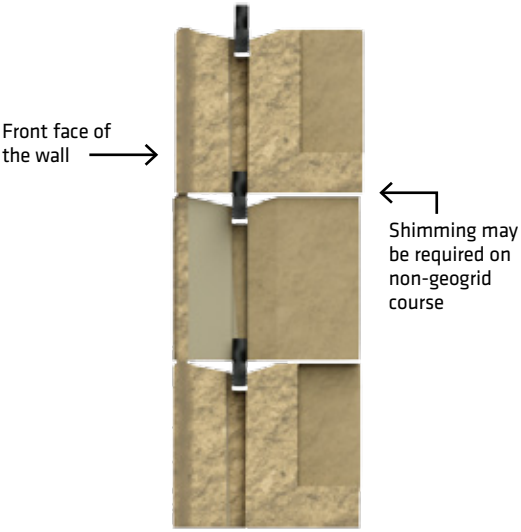
Once the pad is in place, begin by making a wall line where the units will rest. Striking a chalk line works well for concrete leveling pads. A string line is recommended for aggregate leveling pads. Place the first course of blocks tightly together with the sides touching and the textured face outward. The first course must be accurately placed to align with the string line, carefully spaced and leveled to facilitate construction and enhance the appearance of the wall. The tails of the unit should always be used to align the wall face. Occasionally a unit will have a slight difference in height. If this occurs, follow the recommended shimming procedures.



Step 4:
GEOGRID AND CONNECTOR PLACEMENT

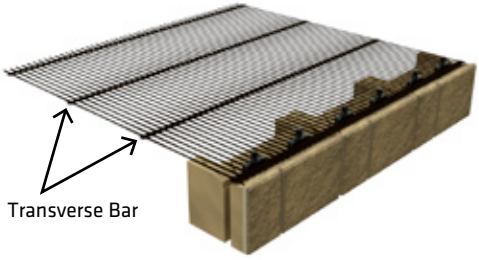
Prior to placing additional courses, insert two Olympia® Connectors shall be into each preceding Olympia Unit.

For vertical block courses, place (2) connectors in block course below the vertical block to prevent block rotation. When transitioning from a vertically oriented block to a horizontal block above, place one connector approximately at the mid-width point of the vertical block below such that the pin of the connector fits into the horizontal block above.



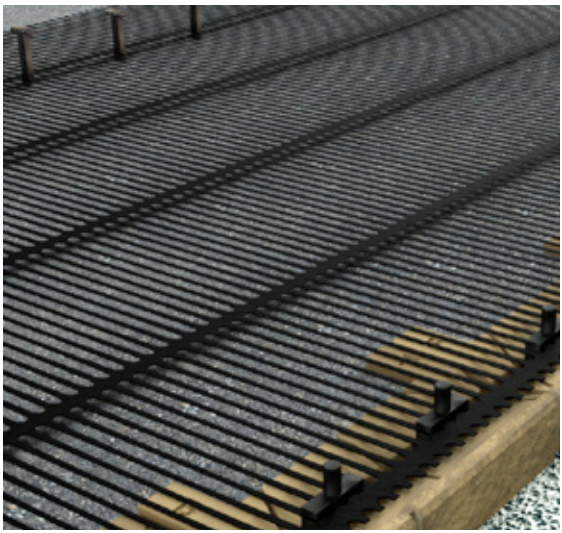
If the design dictates the need for a geogrid at a particular elevation, install the Tensar® Geogrid with the teeth of the Olympia Connectors penetrating through the geogrid apertures. The pin should never be utilized to connect the geogrid to the facing units.

No matter what design considerations are needed, the Olympia® System has a solution.



Step 4 continued: Snug the geogrid against the connector teeth, and then drive the connector the rest of the way using a rubber mallet.

NOTE: *The transverse bar of the geogrid must be pulled taut against the teeth of the connectors prior to final seating of the connector into the block. Any slack in the geogrid may be removed by anchoring it with stakes or rebar.*

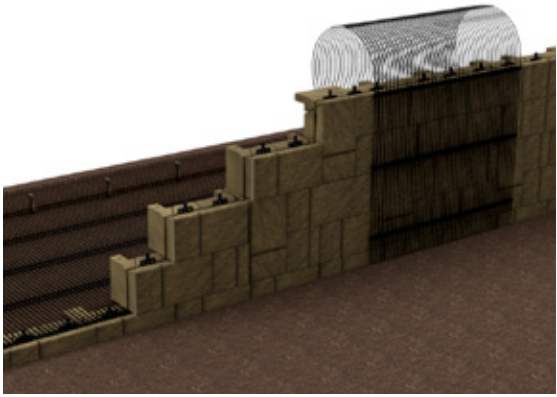


Once the connectors and the geogrid are in place, the Olympia® Units must be swept clean prior to placing the next course. Failure to do this can result in problems with seating and leveling of subsequent courses.

NOTE: *Should the geogrid layer occur at a course with vertically oriented blocks, cut the leading transverse bar of the geogrid on either side of the vertical block and bend geogrid up the rear face of the vertical block.*

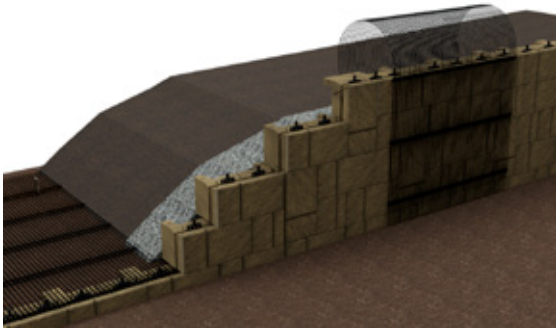
Whatever your need, you can be assured that by building an Olympia® Wall you are adding property value to your land – it's as simple as that.

Step 4 continued: The freestanding units should not be stacked more than the equivalent of 3 horizontal units high and the installation crew should be careful not to move or dislodge the freestanding units with construction equipment or other installation tasks. At the next geogrid layer, connect the geogrid and then drape it over the front face of the wall while the backfill is placed up to the geogrid elevation, as shown below.



Step 5:
PLACE AND COMPACT BACKFILL

Install open graded stone, typically ¾ in., behind the wall face as directed by the approved construction drawings. Use backfill material that meets project specifications. When placing backfill over the geogrid layer, the fill should be placed to minimize any slack in the geogrid. Placing the fill in a direction away from or parallel to the face of the wall. Additionally, a pitchfork can be used to remove slack.



Typically, loose lifts of the reinforced fill shall not exceed 6 in. where hand-operated compaction equipment is used or 10 in. where heavy compaction equipment is used. These thicknesses may vary depending on the approved project-specific soil types used. Compact fill to a minimum of 95% of the maximum dry density, or in accordance with ASTM D-698 (Standard Effort Proctor Test).

NOTE: *Only hand-operated compaction equipment shall be used within 3 ft of the tail of the Olympia® Units.*

Olympia® Walls provide the aesthetics architects demand, efficient installation contractors expect and dependability engineers require.

Step 6:
INSTALL ADDITIONAL COURSES

Place the next course over the Olympia® Connectors on the previous course, fitting the pins inside the open cavities of the blocks. Push the unit forward, so that it makes contact with the connectors. The vertical joint alignment should be checked frequently as the connectors allow the units to slide from side-to-side. As you build up, maintain level on each course by continually checking for level front-to-back and side-to-side. If needed, shim when required. Once the current course is level, continue to repeat steps 4 through 6 until final elevation is reached.

Step 7:
PLACE CAP UNITS (WHEN REQUIRED)

Cap units may be placed such that a nominal 1 in. overhang is achieved or flush with the face of the wall. A concrete adhesive suitable for bonding concrete to concrete should be used to secure cap units to the course below. The adhesive should be suitable for use in an outdoor environment and stable under the temperature extremes expected for the local area. Apply the adhesive in accordance with the adhesive manufacturer's recommendations.

SHIMMING OLYMPIA UNITS

It is important that the courses of Olympia Blocks are level front-to-back and side-to-side. It may be necessary to grind the blocks or use shims between some of the courses to correct an out of level condition.

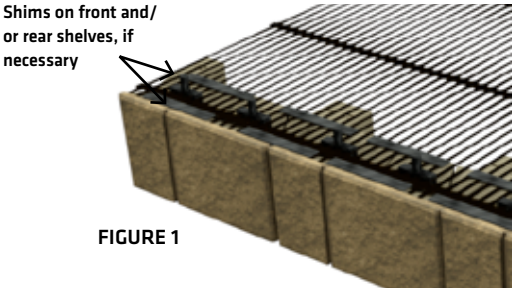


FIGURE 1

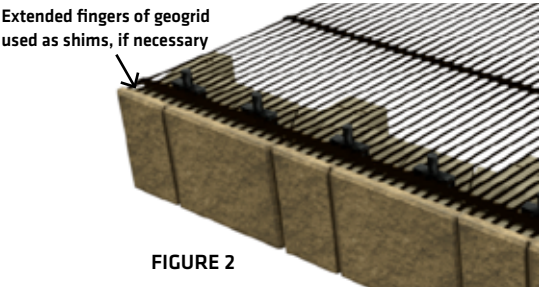


FIGURE 2

For courses placed on a geogrid elevation, shims may be required on the front or rear shelf of the Olympia Unit (Figure 1 above). The shims should be the same thickness of the geogrid rib. The shim material can be a rib trimmed from the same roll of Tensar® Geogrid that is placed on top of the shelf of the unit. An alternative is to cut the geogrid so that the ribs extend approximately 1 in. onto the front or rear shelf (Figure 2 above).

Olympia® Curves & Corners

CONCAVE CURVES

When possible, begin a concave wall from the center of the curve, alternating left and right of the center unit. **Once out of the curve on each end, blocks will likely need to be cut to reestablish a vertical joint. At this point, wall construction will resume with chosen layout pattern**.

It is suggested that a flex pipe be placed on the tail of the units in the curve to ensure a smooth curve. The radius becomes larger as the wall becomes taller, therefore gapping will occur. For this reason, it may be necessary to do significant amounts of block cutting and custom fitting on curves.

Diagram A

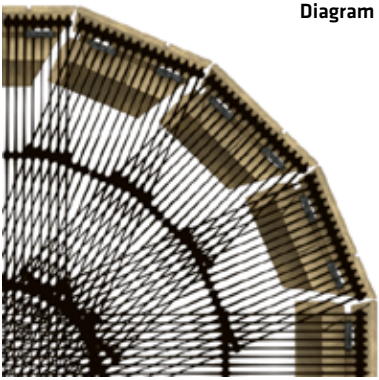
NOTE: *On tight curves, Tensar® Geogrid may be cut lengthwise to the width of the Olympia Units to ensure the transverse bar engages both connectors*

CONVEX CURVES

It is necessary to cut one or both sides of the Olympia blocks to accommodate convex curves. As with concave walls, begin a convex wall from the center of the curve alternating left and right of the center unit. Conversely to concave curves, the radius of a convex curve gets smaller with each additional course.

It is suggested that a flex pipe be placed on the tail of the units in the curve to ensure a smooth curve. The radius becomes smaller as the wall becomes taller, therefore binding will occur.

Diagram B



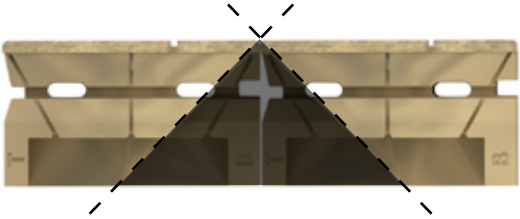
NOTE: *On tight curves, Tensar Geogrid may be cut lengthwise to the width of the Olympia Units to ensure the transverse bar engages both connectors. The wall designer should consider eliminating the requirement for fill between overlapping layers in areas with a tight radius and/or staggering the layout of adjacent sections of geogrid.*

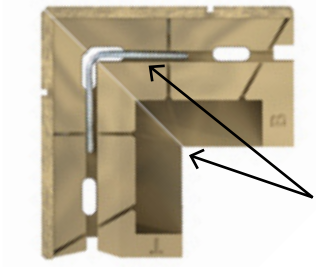
From structural walls to tiered gardens and curved walls to stairs, Olympia® Walls blend seamlessly with the natural surroundings of any site.

90° OUTSIDE CORNERS

For outside 90° corners, cutting two standard Olympia blocks is the suggested method for creating a corner unit.

Step 1:
Cut 45° angles from left and right sides of adjacent blocks





Step 2:
Apply adhesive to cut surfaces and place a #3 rebar bent to a 90° angle into the connection slot

A concrete adhesive suitable for bonding concrete to concrete should be used to secure adjacent Olympia blocks to create the corner units. The adhesive should be suitable for use in an outdoor environment and stable under the temperature extremes expected for the local area. Apply the adhesive in accordance with the adhesive manufacturer's recommendations.

**Alternative corner option: utilize an industry standard segmental block corner unit cut to 16 in length and 8 in depth.*

For more information, contact Tensar International Corporation at **800-TENSAR-1** or **www.TensarCorp.com**.

Tensar®

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