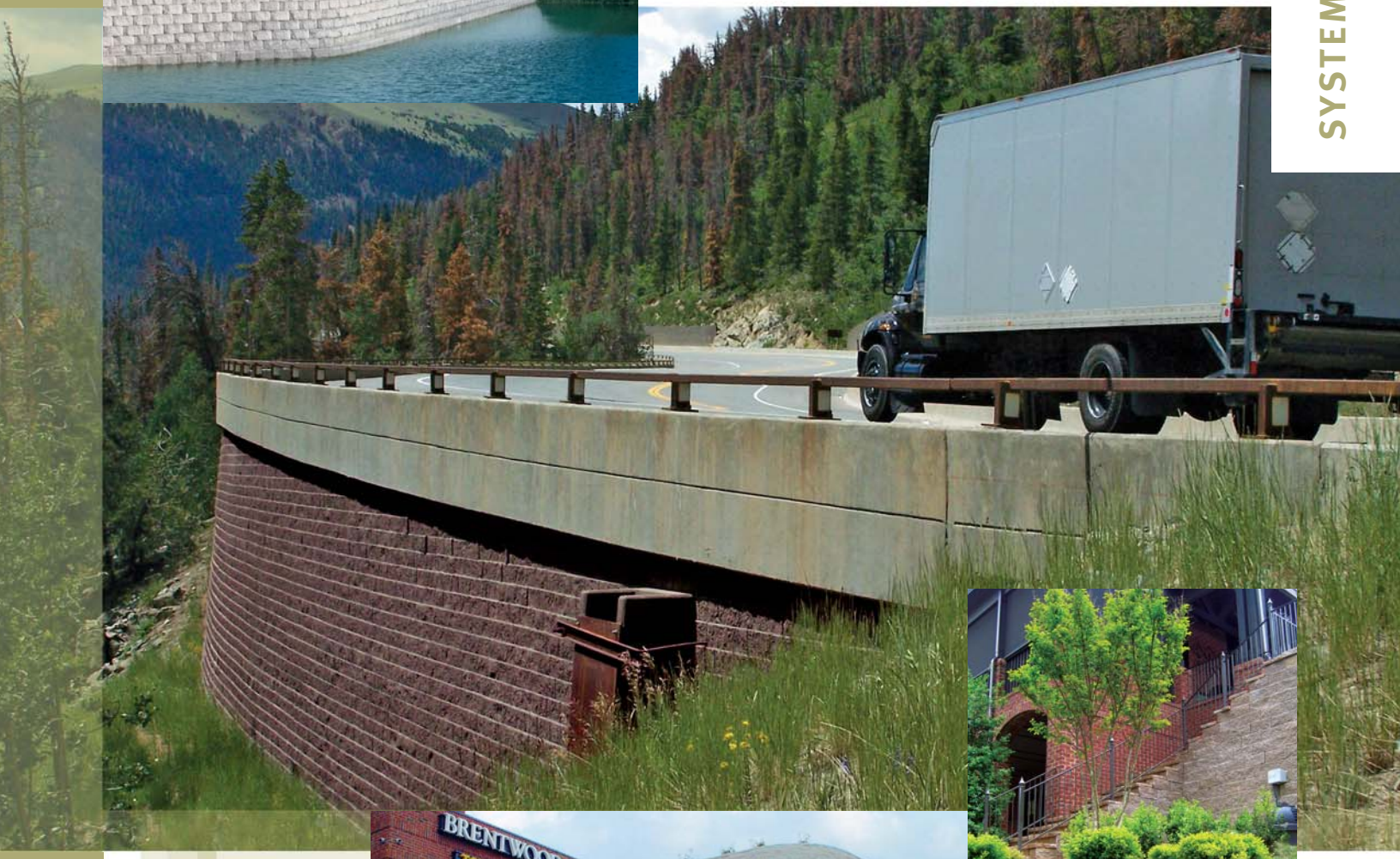
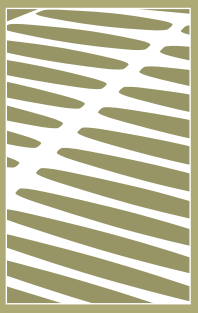
MESA®
RETAINING WALL SYSTEMS

SYSTEM OVERVIEW



Tensar®
INTERNATIONAL

Mesa® Walls provide the dependability engineers require, the efficient installation contractors have come to expect and the aesthetics owners and architects demand in the industry today.



Tensar® Geogrids

The Mesa Retaining Wall Systems owe their strength and durability to **Uniaxial (UX) Geogrids**, Tensar International Corporation's patented reinforcement geogrids. Due to their stiff interlocking capabilities, these geogrids stand the test of time, performing better than other commercially available geosynthetics. For more information, visit www.tensar-international.com.

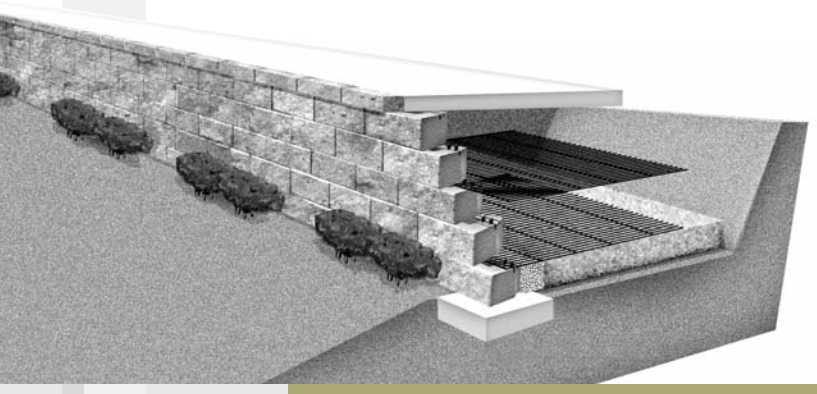
The Connection You Can Count On™

A Single-Source Solution

For over a decade, Mesa® Retaining Wall Systems from Tensar International Corporation have been the retaining wall solution of choice for many architects and engineers. One of the only concrete segmental retaining wall (SRW) systems with a proven, positive, mechanical connection, the Mesa Systems can offer superior and cost-effective solutions for your structural and landscaped retaining wall needs in the commercial, industrial, residential and transportation markets.

With a network of licensed independent block manufacturers throughout the United States, Canada and Latin America, the Mesa Systems have become a new standard in SRW technology. Designed as a truly integrated solution, they are the only SRW system where the block, geogrid and connector have been developed by one company. Unlike other SRWs, the components of a Mesa Wall have been specifically designed to work together for optimum efficiency and performance. High-strength, low-absorption concrete units, high-shear strength connectors and Tensar® Geogrids all work together to form a mechanically stabilized earth (MSE) system that can meet or exceed the industry standard. In fact, as a result of the high connection strength and reliability of the system, core fill is rarely needed. Using less core fill results in greater project savings through less imported stone and less labor.

If you're looking for long-term durability, increased structural integrity and simplified construction, all at lower costs than most conventional alternatives, specify the Mesa Retaining Wall Systems on your next project.



* Core fill is defined as the aggregate fill within the open void space of an SRW Block. Core fill is suggested for wall segments that form convex curves with a radius less than 25 ft and 90° outside corner units.

Mesa Systems' Standard Components

COMPONENT	FUNCTION
Tensar Geogrids	High-density polyethylene (HDPE) structural geogrids internally reinforce structure and fill materials. Inert to chemical degradation, they can be used with non-select fill or even crushed concrete.
Mesa Segmental Units	High-strength concrete block with a compressive strength that exceeds American Association of State Highway and Transportation Officials (AASHTO) standards (>4,000 psi).
Mesa Connectors	Unique locking connectors are designed to mechanically connect the Tensar Geogrids to the Mesa Units. Provide a low-strain, end-bearing connection that is not dependent on friction for structural integrity and allow walls to be built near vertical or with a ⅝ in. setback.
Engineering Services	Engineering, design drawings and initial site assistance available upon separate specific written contract signed by Tensar International Corporation. Other elements (including leveling pad, backfill and drainage) are supplied by others.

Full Line of Products

Structural and Landscape Solutions

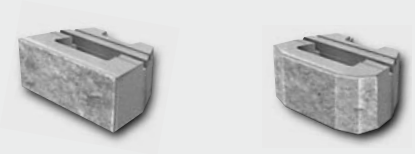
Whether you're increasing useable land or improving property value, the Mesa® Systems can solve your most challenging grade change requirements with a full line of SRW products. From building large structural walls to small tiered garden walls, Mesa Units blend almost effortlessly with the natural surroundings of any site.

Aesthetically Versatile

Whether you're creating stairs, 90° corners, or convex or concave curves, Mesa Walls can easily accommodate a variety of design considerations. Based on your specific aesthetic requirements, units can be varied by color and texture, and walls can even be built by mixing different facing options. Designs are nearly limitless – architects and designers are bound only by their imaginations.

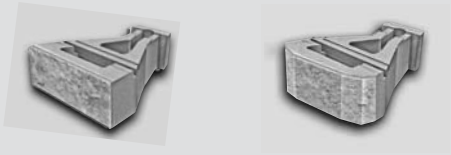
Standard Units – The most popular Mesa Unit in our full line of products. The Standard Unit can be used for almost any SRW need.

8"h x 18"w x 11"d nom./75 lbs



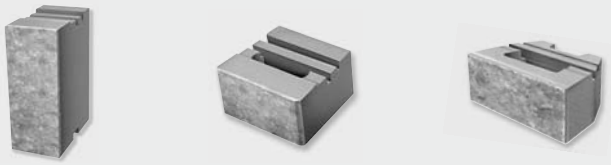
XL Units – Unit has an extended "tail" that provides installers an option for taller gravity wall installations.

8"h x 18"w x 22"d nom./110 lbs



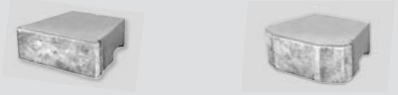
Ashford™ Units – Create randomly patterned, mosaic-like walls using the Mesa Ashford System. Units are available in many different sizes for a wide variety of facing options and are only available with a straight face.

Tall Unit: 16"h x 6"w x 11"d nom./60 lbs
Medium Unit: 8"h x 12"w x 11"d nom./60 lbs
Standard Unit: 8"h x 18"w x 11"d nom./75 lbs



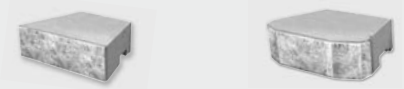
Gardener™ Units – Simple, do-it-yourself (DIY) blocks are perfect for edgings, borders, sidewalks and other types of landscaped walls up to 3 ft high.

Gardener Unit: 4"h x 12"w x 8"d nom./25 lbs



Adobe™ Units – For exclusive use with Tensar® LH800 Geogrid, the Adobe Walls can be built up to 10 ft tall and are ideal for many DIY projects.

Adobe Units: 6"h x 16"w x 12"d nom./60 lbs



In addition to the units listed above, we also offer caps, landscape and corner units. Availability of each type of Mesa Unit depends on local manufacturer. For more information on the units produced in your area, please call 800-TENSAR-1.

By coexisting with both nature and industry, a Mesa® Wall combines creativity with functionality, providing the ideal solution for any situation.

Creative Commercial and Industrial Projects

When designing for commercial applications, the need to combine creative looks with practical installations becomes a necessity, while at the same time maintaining the bottom line. That's where the Mesa® Systems can help. By coexisting with both nature and industry, a Mesa Wall combines creativity with functionality, providing the ideal solution for almost any situation.

Endless Applications

- **Commercial Developments –** Retail malls, big box stores, office complexes, etc.
- **Recreational Jobs –** Golf courses, amusement parks, amphitheaters, sports facilities, etc.
- **Municipal Projects –** Schools, hospitals, government buildings, public parks, libraries, etc.
- **Industrial Sites –** Manufacturing and waste facilities, aggregate quarries, freight yards, mills, power plants and much more.
- **Stormwater Management –** Detention ponds, dry ponds and extended storage ponds.

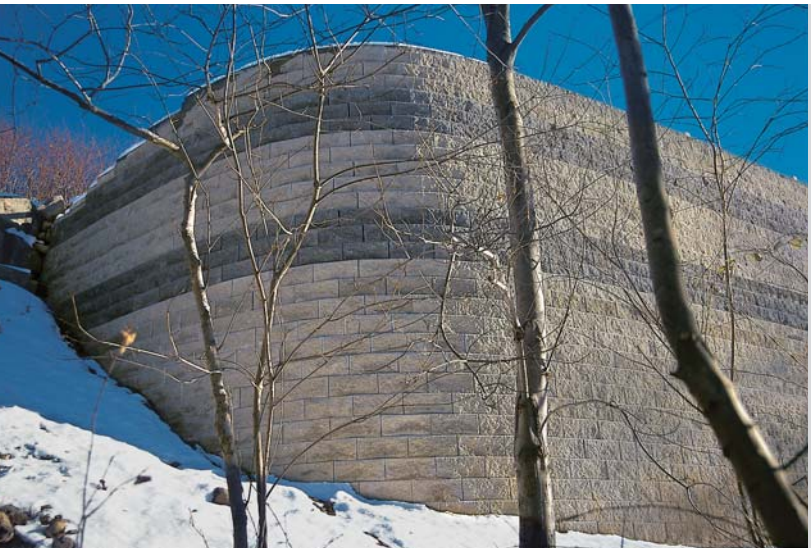
Building on Codes

Local building codes are applicable to almost all retaining walls in the commercial, industrial and even residential markets. Most municipalities in the United States regulate, enforce and inspect the design standards for SRWs that exceed four feet in height. Conforming to these codes is imperative. If codes are not met, you risk the chance of wall failure or fines. We're proud that various versions of our Mesa Systems have been positively evaluated by local and state governments across North America.

Standing Up to Industrial Sites

Industrial sites often have heavy loading conditions and high-traffic areas. With a greater tolerance to differential and total settlement, the enhanced connection capabilities of the Mesa Systems make them an exceptional solution for these types of projects. Mesa Walls can be designed to stand up to high static loads and have been known to handle areas with high seismic activities.

Note: Consult with a local geotechnical engineer to determine the suitability of a Mesa Wall for your particular needs.




PGE PARK
BUD LIGHT


TJ maxx
A.C. MOORE
Now Open!

By building a Mesa® Wall you are adding property value to your land – it's as simple as that.



Reliable Residential Applications

Mesa® Walls provide a variety of solutions for your single-family and multi-family home projects. Whether you need a structural or landscaped wall, Mesa Units blend with natural surroundings to combine creativity with functionality and provide a solution for almost any residential situation. By building a Mesa Wall you are adding property value to your land – it's that simple.

Power of the Positive

There's a lot to be said for beauty and versatility in the residential market. But you want to make sure your wall withstands the test of time. With structural walls, it can all come down to connection. If you compromise connection strength, you risk wall failure. Most other SRW systems rely on aggregate interlock or friction between the components to hold the geogrid reinforcement in place and call it a "connection." The patented, mechanical Mesa Connector, however, provides a block-to-geogrid reinforcement connection that does not rely on friction or the weight of the SRW Unit. This creates a structural wall that helps assure efficiency and performance, and will last for many years to come.

More than Just Landscaped Walls

Beyond structural walls, your property can be enhanced using simple landscaped wall designs. The Mesa Systems offer simple aesthetic considerations to blend with any home and are easier to maintain than other conventional wall alternatives. Unlike treated lumber and railroad ties, Mesa Units will not rot or warp. Their high-compression strength concrete resists insect infestation. This assures a virtually maintenance-free and environmentally friendly wall that is sure to please any property owner.

The Mesa Systems' Standard Connector holds the Tensar Geogrid securely to the Mesa Block.

With the Mesa® Systems' structural, mechanical connection, you are assured connection integrity where it is needed most – at the face.

Tried and True Transportation Solutions

The long-term performance of a SRW system is tested most rigorously in the public transportation market. Differential settlement, traffic barriers and seismic loads can test the strength of any retaining wall, so connection strength must be reliable. To ensure that the Mesa® Systems meet and exceed the stringent standards of the transportation market, Tensar International Corporation developed the Department of Transportation (DOT) Connector. With the Mesa Systems' DOT Connector you are assured of a mechanical connection where it is needed most – at the face.

Exceptional Performance and Integrity

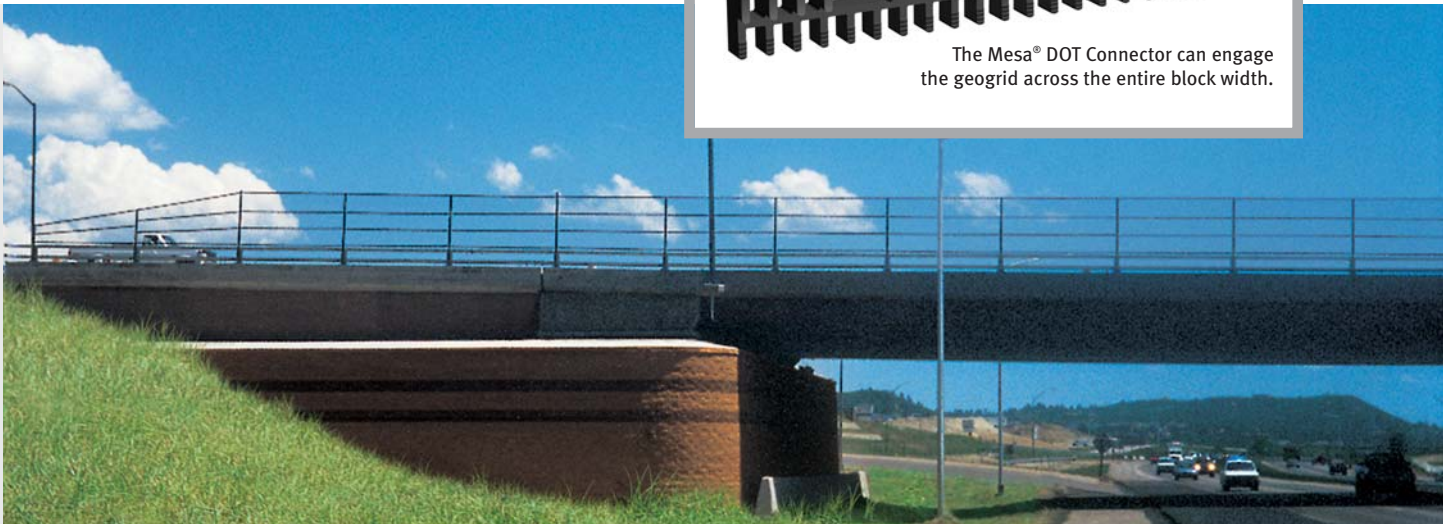
The Mesa Systems' DOT Connector was designed to meet the long-term performance demands under current American Association of State Highway and Transportation Officials (AASHTO) load resistant factor design (LRFD) and allowable stress design (ASD). This connector structurally joins the Tensar® Geogrid to the Mesa Systems' concrete facing unit. The system and connection components are largely unaffected by abrasion, tearing or hydrolysis – factors that undermine the performance of frictional systems using a woven polyester geogrid reinforcement. When specifying with the Mesa Systems you can be assured that the system's structural components are reliable and designed for long-term performance.

Recognized for Its High Standards

In 2000, the Highway Innovative Technology Evaluation Center (HITEC) completed their evaluation of various versions of the Mesa Retaining Wall Systems. Impartial performance reviews conducted by HITEC provide information that help DOT agencies make informed purchasing decisions. This evaluation of the Mesa Systems as a geosynthetic-reinforced retaining wall is often a determining factor in the inclusion of the Mesa Systems in transportation project specifications. Since the 2000 evaluation, Mesa Systems have evolved even further, increasing installation and design capabilities. Many of the variations that have been made are already accepted and being utilized by leading DOTs in the SRW marketplace.

For more information on how to obtain a complete copy of the Mesa Systems' HITEC evaluation, please call 800-TENSAR-1.

The Mesa® DOT Connector can engage the geogrid across the entire block width.



MesaPro™ Software helps you make sound technical decisions based on your specific site requirements while continuing to optimize your designs for the Mesa Retaining Wall Systems.

Designing with MesaPro™ Software

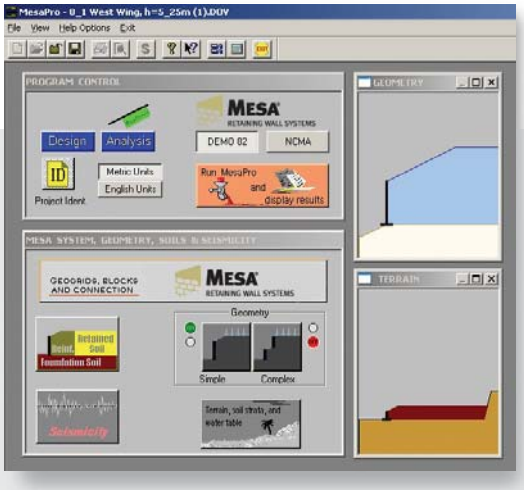
We are proud to offer MesaPro™ Software to engineers and architects interested in the newest technology for designing Mesa® Retaining Wall Systems reinforced by Tensar® Geogrid. This unique program has the flexibility to adjust design criteria to meet project specifications while helping you to make sound technical decisions based on your specific site requirements. The program lets you optimize your design with a variety of different Tensar Geogrid options. Mesa Walls can be designed for global stability with or without batter.

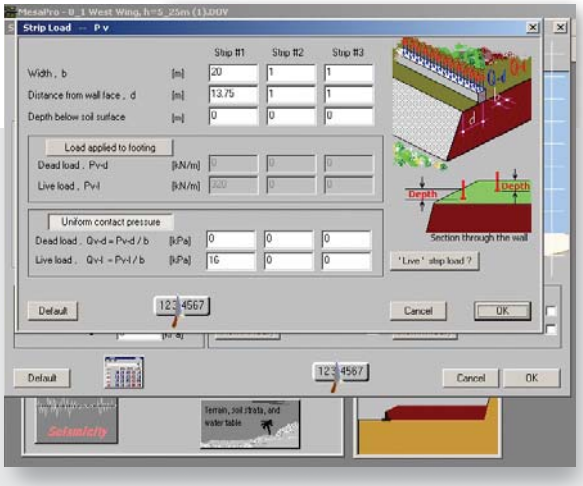
MesaPro Software has the flexibility to allow you to design in general accordance with *AASHTO '98 Standard Specifications for Highway Bridges and the FHWA-SA-96-071 Demonstration Project 82 Guidelines* (commonly referred to as Demo 82), as well as the National Concrete and Masonry Association (NCMA) design requirements. This flexibility allows you to save time when analyzing for global stability and other unusual site and loading conditions, and it can help you define up to five different foundation soil layers and ground water locations. Design considerations include, but are not limited to bridge abutments, superimposed walls, trapezoidal walls and back-to-back walls.

This interactive software provides you with immediate feedback while allowing you to see your design as work progresses. And you have the confidence of knowing that this program is offered by Tensar International Corporation, the industry's leader in soil reinforcement products for over 25 years.

MesaPro Software can run on Windows® 95, 98, 2000, NT or XP platforms and is available at a cost of $99 per program. To order your copy, contact our customer service department at 800-TENSAR-1.

Note: Always use a qualified professional engineer for your wall design.





Standard Mesa® Design

The following information is provided for general illustration purposes only. This information does not constitute engineering advice.

Note: Final designs should only be performed by a qualified professional engineer providing sealed drawings, calculations and detailed installation requirements.

Using the Charts:

The generalized design charts on the following pages cover six different design scenarios with a range of wall elevations from 4 ft (1.2 m) to 14 ft (4.2 m), increasing in height incrementally by 2 ft (600 mm). The design scenarios alter the wall batter, backfill soil type and loading conditions. Understanding these different scenarios is important in selecting the most appropriate solution for your specific design.

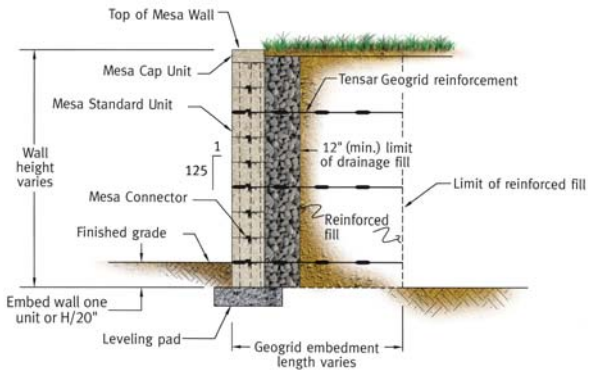
- **Wall Batter –** Mesa® Walls can be constructed at either near vertical or 4.5° batter.
- **Soil Types –** The two backfill soil types are a sand material (32°) and a silty sand or clayey sand (28°) that meet a minimum gradation and plasticity recommendation provided by NCMA.
- **Loading Conditions –** The three loading conditions are:
  1. A horizontal surface at the top of the wall with no surcharge load.
  2. A horizontal surface at the top of the wall with a uniform surcharge of 180 psf.
  3. A 3H:1V slope on top of the wall.

Once the most appropriate design case has been identified, the chart will present the suggested geogrid type, embedment length and geogrid spacing. All lengths listed are measured from the wall face to the last transverse bar* on the Tensar Geogrid and are uniform throughout the given elevation of the wall.

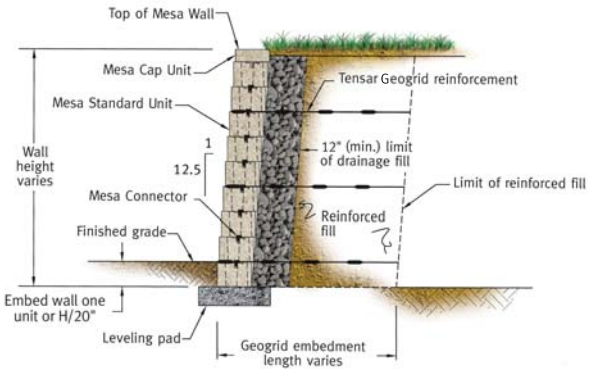
The design charts assume that the walls are constructed in accordance with the Mesa® Systems' standard specifications and construction guidelines. Other requirements and limitations are based on actual site conditions will also apply. Please visit www.tensar-international.com or call 800-TENSAR-1 for more information on Mesa Systems' standards.

* The tranverse bar is the solid section of the Tensar Uniaxial Geogrid, approximately .75 in. wide, located parallel to the face of the retaining wall and in a repeat pattern at a 6 in. to 20 in. spacing (depending upon the type of uniaxial geogrid being reviewed).

Typical Cross-Section (Near Vertical)

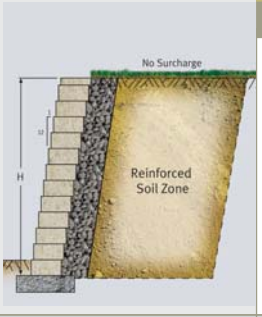


Typical Cross-Section (5/8 in. Setback)



Mesa® Design Charts

REINFORCED BACKFILL SOIL TYPE

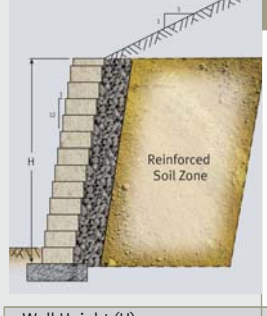


	Sand: Ø=32°; γ =120 pcf; c=0						Silty Sand/Clayey Sand: Ø=28°; γ =120 pcf; c=0					
Wall Height (H)	H=4 ft	H=6 ft	H=8 ft	H=10 ft	H=12 ft	H=14 ft	H=4 ft	H=6 ft	H=8 ft	H=10 ft	H=12 ft	H=14 ft
Geogrid Length (L) Geogrid Type	L=4 ft LH800	L=4 ft LH800	L=6 ft LH800	L=6.5 ft UX1100	L=7.5 ft UX1100	L=8 ft UX1100	L=4 ft LH800	L=4 ft LH800	L=6 ft UX1100	L=6.5 ft UX1100	L=8 ft UX1100	L=9.5 ft UX1400

REINFORCED BACKFILL SOIL TYPE

	Sand: Ø=32°; γ =120 pcf; c=0						Silty Sand/Clayey Sand: Ø=28°; γ =120 pcf; c=0					
Wall Height (H)	H=4 ft	H=6 ft	H=8 ft	H=10 ft	H=12 ft	H=14 ft	H=4 ft	H=6 ft	H=8 ft	H=10 ft	H=12 ft	H=14 ft
Geogrid Length (L) Geogrid Type	L=4 ft LH800	L=4 ft LH800	L=6 ft LH800	L=6.5 ft UX1100	L=7.5 ft UX1100	L=8.5 ft UX1400	L=4 ft LH800	L=6 ft LH800	L=6 ft LH800	L=6.5 ft UX1100	L=8 ft UX1100	L=9.5 ft UX1400

REINFORCED BACKFILL SOIL TYPE



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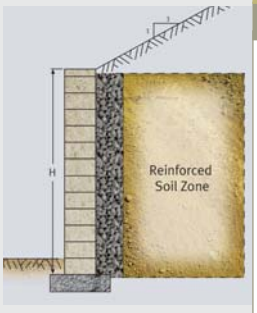
Wall Height (H)	H=4 ft	H=6 ft	H=8 ft	H=10 ft	H=12 ft	H=14 ft	H=4 ft	H=6 ft	H=8 ft	H=10 ft	H=12 ft	H=14 ft
Geogrid Length (L) Geogrid Type	L=4 ft LH800	L=6 ft LH800	L=6 ft LH800	L=7.5 ft UX1100	L=9 ft UX1100	L=10.5 ft UX1400	L=4 ft LH800	L=6 ft LH800	L=8 ft UX1100	L=9.5 ft UX1100	L=11 ft UX1400	L=13 ft UX1400

REINFORCED BACKFILL SOIL TYPE



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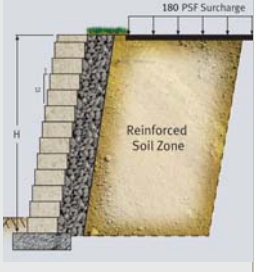
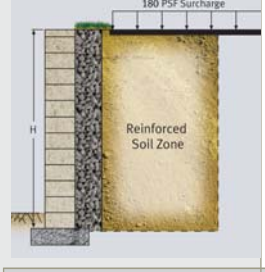
Wall Height (H)	H=4 ft	H=6 ft	H=8 ft	H=10 ft	H=12 ft	H=14 ft	H=4 ft	H=6 ft	H=8 ft	H=10 ft	H=12 ft	H=14 ft
Geogrid Length (L) Geogrid Type	L=4 ft LH800	L=6 ft LH800	L=6 ft LH800	L=7 ft UX1100	L=8.5 ft UX1100	L=10 ft UX1400	L=4 ft LH800	L=6 ft LH800	L=7.5 ft UX1100	L=9 ft UX1100	L=11 ft UX1100	L=12.5 ft UX1400

REINFORCED BACKFILL SOIL TYPE



	Sand: Ø=32°; γ =120 pcf; c=0						Silty Sand/Clayey Sand: Ø=28°; γ =120 pcf; c=0					
Wall Height (H)	H=4 ft	H=6 ft	H=8 ft	H=10 ft	H=12 ft	H=14 ft	H=4 ft	H=6 ft	H=8 ft	H=10 ft	H=12 ft	H=14 ft
Geogrid Length (L) Geogrid Type	L=4 ft LH800	L=5 ft LH800	L=6 ft LH800	L=7.5 ft UX1100	L=8.5 ft UX1100	L=10 ft UX1400	L=6 ft LH800	L=6 ft LH800	L=8 ft UX1100	L=9.5 ft UX1100	L=11 ft UX1400	L=12 ft UX1400

REINFORCED BACKFILL SOIL TYPE



	Sand: Ø=32°; γ =120 pcf; c=0						Silty Sand/Clayey Sand: Ø=28°; γ =120 pcf; c=0					
Wall Height (H)	H=4 ft	H=6 ft	H=8 ft	H=10 ft	H=12 ft	H=14 ft	H=4 ft	H=6 ft	H=8 ft	H=10 ft	H=12 ft	H=14 ft
Geogrid Length (L) Geogrid Type	L=4 ft LH800	L=6 ft LH800	L=6 ft LH800	L=7.5 ft UX1100	L=8.5 ft UX1100	L=10 ft UX1400	L=6 ft LH800	L=6 ft LH800	L=8 ft UX1100	L=9.5 ft UX1100	L=11 ft UX1400	L=12 ft UX1400

For further information, please refer to the *Mesa® Systems' Design Guidelines Manual* and/or MesaPro™ Design Software available from Tensar International Corporation. To order, visit www.tensar-international.com or call 800-TENSAR-1.

Mesa® Walls are more than a site solution: they create a visually appealing landscape feature on your site.

The Many Different Faces of Mesa® Walls

Endless Design & Aesthetic Options

Beyond design, if your site needs a retaining wall, why not make it as attractive and useful as possible? In today's competitive and ever-changing wall market, architects and owners are continually looking for new ways to build walls that look as good as they work.

Mesa Systems are at the forefront of the industry with a wide array of design options. From blending and variegating colors and textures, to planting greenery on tiered walls and top slopes, walls become more than a site solution – they become an appealing landscape feature on your site.

Mesa® Ashford™ System

Recent designs and architectural trends are calling for solutions offering a more natural and aesthetic appeal. SRWs are no exception.

The Mesa® Ashford™ System is meeting this market demand with an ashlar-inspired, mosaic-like pattern facing. Available in the same colors, blends and textures as other Mesa Units, Ashford Units can be configured in a number of ways. Walls can be built to a near-vertical facing angle, equivalent to a 4.5° batter. They can also be installed to create 90° corners, stairs and dramatic serpentine curves.

The Ashford Wall's unique top and bottom channel allow the flexibility to design almost any look, while maintaining the Mesa Systems' unique, positive, mechanical connection assuring a stronger facing connection to the geogrid reinforcement.

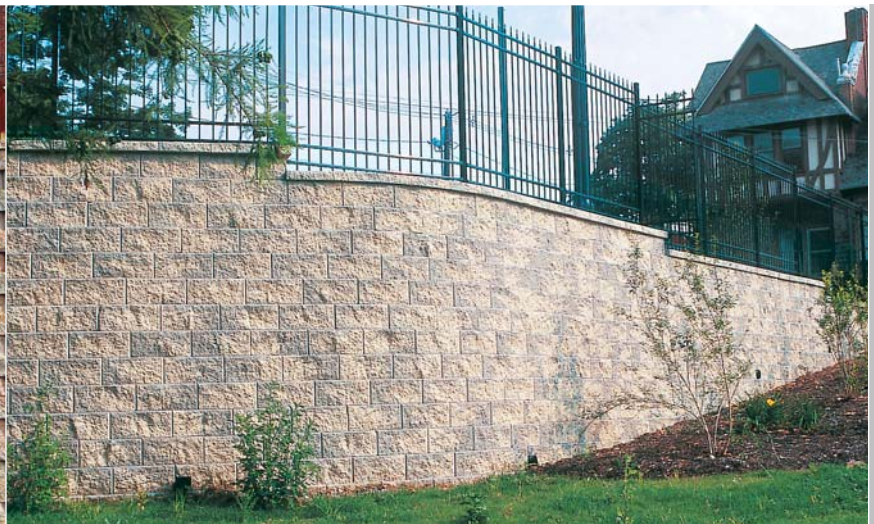
For additional information on suggested potential Ashford Wall patterns and a document calculating estimated block quantities, please call 800-TENSAR-1 or download the Mesa Ashford System flyer at www.tensar-international.com.

Designing for Special Considerations

Serpentine walls blend with naturally curving contours, while inside and outside corners complement the traditionally angular look of existing structures. With the Mesa Systems, your design options know no bounds.

- **Curves and Corners –** Designing for inside, outside and serpentine curves as well as 90° inside and outside corners is easy as the unique locking connector makes alignment and installation quick and simple.
- **Steps –** Whether you require steps inside or in front of your wall, the Mesa Systems is up to the challenge. By offering different units to aid in your project requirements, virtually any design can be realized.
- **Tiered and Terraced Walls –** A less obtrusive alternative than conventional wall solutions, tiered and terraced walls can be built in areas with sufficient land space. In order for each wall to be considered its own independent structure, typical design guidelines require enough "green space" between the walls equal to or greater than two times the height of the lower wall.

For more information on design and construction with these or other special considerations, please refer to the *Mesa® Systems' Installation and Special Considerations Manual*. Other requirements and limitations based on actual site conditions will also apply. For local availability of the different unit and color options in your area, please call 800-TENSAR-1 to contact your regional Mesa Systems' representative.



Standard Installation Procedures

The following steps provide a very general guide for installing a Mesa® Retaining Wall System with the Mesa Standard Unit. These steps will help you through a typical installation procedure from start to finish.

Additional information is available in the *Mesa Systems' Installation and Special Considerations Manual*. A copy can be obtained by calling 800-TENSAR-1, visiting www.tensar-international.com, or contacting your local Mesa Systems' representative.

Note: Specific requirements and installation steps for your project are governed by the final drawings sealed by a registered professional engineer. Other useful documents which should be consulted prior to final design and construction are the *NCMA Segmental Retaining Wall Drainage Manual (2002)* and the *NCMA Segmental Retaining Wall Design Manual*.

Step 1:
Preconstruction Preparation

It is important to make yourself familiar with the components of the Mesa® Systems prior to the start of construction. Below is a list of these components and the tools needed to aid you in the construction of a standard Mesa Wall.

Mesa Corner Units, drainage composite, piping and geotextile materials may also be required.

Mesa Components:

- Mesa Block
- Mesa Connector
- Geogrid
- Mesa Cap (if applicable)
- Concrete Adhesive (if applicable)

List of suggested tools for the installation of the system:

- Dead blow hammer
- 2 ft – 4 ft level
- Utility saw and/or grinder
- Masonry string and chalk line
- Pitchfork (used to help remove slack from geogrid)
- Shovels
- Compaction equipment

Step 2:
Prepare the Leveling Pad

Prepare the subgrade by excavating or filling vertically to plan elevation and horizontally to design geogrid lengths. If the excavated material can meet the reinforced fill requirement, then it can be stockpiled with surface vegetation and debris removed prior to backfill. 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 ¾ in. minus crushed stone). The leveling pad is typically 12 in. wider than the Mesa Unit, 6 in. in front and behind the Mesa Unit. Compact the well-graded stone in accordance with project plans and specifications. Aggregate leveling pads are generally overbuilt and should be carefully trimmed down to meet the proper elevation.

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. If a concrete leveling pad is used, it is important to have the step-up heights match the Mesa Unit's height exactly. If not, grinding and/or shimming may be required.

Note: The leveling pad requirements and suitability of the foundation soil for your project should be investigated and provided by a qualified professional engineer engaged by the installer on the project.

Step 3:
Install the Base Course

Once the pad is in place, begin by making a wall line where the units will rest. Chalk works well for concrete, while string works well for aggregate. Place the first course of Mesa Units 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 tail 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, the rib or fingers of the geogrid may be used to shim the face or tail back to level.

Note: Surface or subsurface water should never be allowed to saturate the backfilled reinforcement zone. Adequate drainage measures, the testing of site soils and the backfill compaction and overall construction quality control is the responsibility of the owner or owner representatives, not Tensar International Corporation.

Note: A qualified professional geotechnical engineer should evaluate the site, surface and subsurface conditions, other environmental factors, and the intended use and location of the wall, in advance of final wall design and installation.

Mesa® Systems' Standard Components:

Mesa Standard Unit	Mesa Cap Unit	Mesa Connector	Tensar® UX Geogrid

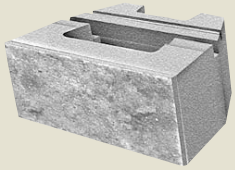
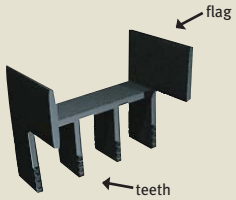
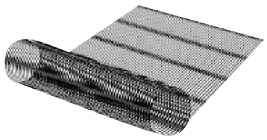

			

Figure 1	Figure 2	Figure 3	Figure 4

Step 4:
Geogrid and Connector Placement

Prior to placement of additional courses, and depending on the block being used, two Mesa® Connectors (Figure 3) are inserted into each preceding Mesa Unit (Figure 1). The orientation of the exposed portion of the connector, or flag, will create the batter of the wall face. If the design dictates the need for a geogrid at a particular elevation, the Tensar® Uniaxial (UX) Geogrid (Figure 4) will be installed with the Mesa Connectors penetrating through the geogrid apertures. 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 connectors prior to final seating of the connector into the block. The geogrid may be held in place by anchoring it with stakes or rebar at the tail end.

Once the connectors and the geogrid (when required) are in place, the Mesa Units must be swept clean prior to placing the next course. Failure to do so can result in problems with seating and leveling of the subsequent courses. Stone or core fill is not required to be placed inside the Mesa Units for wall segments that are straight, concave or have 90° inside corners.

Step 5:
Place and Compact Backfill

Install drainage fill, typically ¾ in. well-drained stone, behind the wall face as directed by the design drawings (12 in. min.). Peagravel should not be used for drainage fill. Behind the drainage fill, 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 will minimize this slack. In addition to the direction of fill placement, a pitchfork or rake can be used to assist in removing slack as fill is placed over the geogrid.

Loose lifts of the reinforced fill shall not exceed 6 in. where hand compaction equipment is used, or 10 in. where heavier compaction equipment is used. These thicknesses may vary depending on the approved project-specific soil types used. Compact fill to 95% Standard Proctor per ASTM D-698 or as required by the design and contract documents.

Note: Only hand-operated compaction equipment shall be used within 3 ft of the tail of the Mesa Units. Heavy equipment in this area can dislocate the geogrids and face units.

Step 6:
Install Additional Courses

Place the next block course over the Mesa Connectors on the previous course, fitting the flags inside the open cavity of the block. 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 back to level with a rib or fingers of the geogrid. 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)

These units (Figure 2) 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.

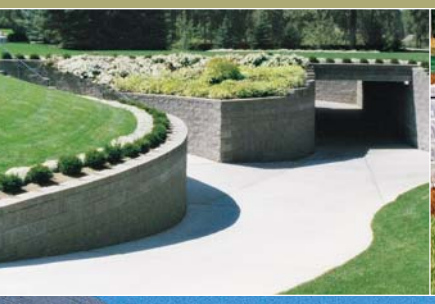
By combining beauty and elegance with efficiency and performance, Mesa® Walls are built to stand the test of time.

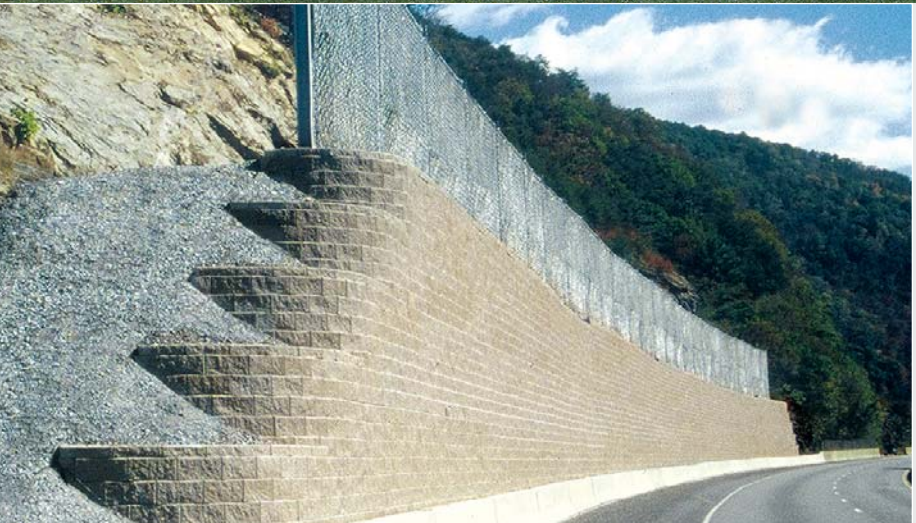
The Solutions of Choice

The Mesa® Systems have increasingly become the solution of choice for residential, commercial, industrial and transportation applications. By combining beauty and elegance with efficiency and performance, Mesa Walls are built to stand the test of time.

Our distribution team throughout the United States, Canada and Latin America is dedicated to providing you with the highest quality products, service and support. With a technically trained field sales staff and an in-house engineering department, Tensar International Corporation succeeds in keeping its systems at the forefront of today's design technology and market trends.

For more information on our Mesa® Systems, please call 800-TENSAR-1, visit www.tensar-international.com or e-mail info@tensarcorp.com. We are happy to supply you with additional Mesa Systems product information and specifications, preliminary cost estimates, summaries of completed projects, software and much more. Engineering and design services are available separetely by specific written contract signed by Tensar International Corporation.





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