

Appendix 16-D Preapproved Proprietary Retaining Wall Systems

Last updated (January 2024)

GDM 16.6.13) each sheet

16.2.4.2 each sheet

Proprietary System	Manufacturer	Wall Type per GDM Section 15.2.4.2	Wall facing	Soil reinforcement type (MSE only)	Minimum possible batter from vertical (0.0° is vertical)	Bridge wall maximum preapproved height (ft)	Highway wall maximum preapproved height (ft)	Minor wall maximum Preapproved height (ft)	Preapproval of Highway walls for 1: 2 (v: h) backslopes?	Preapproval of Tiered walls where lower tier is loaded by upper wall (see GDM 15.6.13)?	Preapproval Status	Other Conditions of Preapproval
Allan Block AB3® (MSE system)	Oregon Block and Paver MFG (541) 233-7856	3A	hollow core dry cast modular block	geogrid	3.0°	n.a.	32	n.a.	yes	yes	Preapproved 2012	Must use AB3 units; Must use geogrid from ODOT QPL; Must use geogrid design values per ODOT QPL; Must use block/geogrid combinations with valid connection test data to support the design; See Note 1; See Note 2.
Allan Block AB6® (MSE system)	Oregon Block and Paver MFG (541) 233-7856	3A	hollow core dry cast modular block	geogrid	6.0°	n.a.	32	n.a.	yes	yes	Preapproved 2012	Must use AB6 units; Must use geogrid from ODOT QPL; Must use geogrid design values per ODOT QPL; Must use block/geogrid combinations with valid connection test data to support the design; See Note 1; See Note 2.
Allan Block AB6® (Gravity system)	Oregon Block and Paver MFG (541) 233-7856	2E	hollow core dry cast modular block	n.a.	6.0°	n.a.	4	4	no	no	Preapproved 2012	Must use AB6 units; See Note 1.
Anchor Diamond (prefabricated modular system)	Anchor Wall Systems, Inc. (949) 363-6663	2E	solid core dry cast modular block	n.a.	10.6°	n.a.	4	4	no	no	Preapproved 2012	Must use Diamond Straight Face units or Diamond Beveled Face units; Must use geogrid from ODOT QPL; See Note 1.
Anchor Vertica® (prefabricated modular system)	Anchor Wall Systems, Inc. (949) 363-6663	2E	hollow core dry cast modular block	n.a.	4.0°	n.a.	3.33	3.33	no	no	Preapproved 2012	Must use Vertica Straight Face units or Vertica Beveled Face units; See Note 1.
Anchor Vertica Pro® (prefabricated modular system)	Anchor Wall Systems, Inc. (949) 363-6663	2E	hollow core dry cast modular block	n.a.	4.0°	n.a.	4	4	no	no	Preapproved 2012	Must use Vertica Pro Straight Face units or Vertica Pro Beveled Face units; See Note 1.
Keysteel™ SQ. Ft. Panel System (MSE system; formerly called Keysystem 1)	Keystone Retaining Wall Systems, A Contech Company (952) 897-1040	3A	hollow core dry cast modular block	HDG welded wire	0.5°	49	49	n.a.	yes	no	Preapproved - Temporary 2001	Must use Keysteel Sq. Ft. units; See Note 1.

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Artweld Gabion (prefabricated modular system)	Hilfiker Retaining Walls HW® (800)762-8962	2D	gabion	n.a.	0.0°	n.a.	15	4	yes	no	Preapproved-Temporary 1997	See Note 1.
Reinforced Soil Emb. Shadow Panel (MSE system)	Hilfiker Retaining Walls HW® (800)762-8962	3D	2.0'x12.5' (VxH) precast panel	HDG welded wire	0.0°	0	30	n.a.	yes	no	Preapproved-Temporary 1996	See Note 1.
Reinforced Soil Emb. Smooth Face (MSE system)	Hilfiker Retaining Walls HW® (800)762-8962	3C, 3D	5.0'x5.0' precast panel	HDG welded wire	0.0°	40	40	n.a.	yes	yes	Preapproved 2014	See Note 1.
Welded Wire Wall (MSE system)	Hilfiker Retaining Walls HW® (800)762-8962	3E	welded wire	HDG welded wire	0.0°	0	33	n.a.	yes	yes	Preapproved 2012	Must use exposed welded wire face; Vegetated face, gunite face covering, and shotcrete face covering not preapproved at this time; See Note 1.
Eureka Reinf. Soil (MSE system)	Hilfiker Retaining Walls HW® (800)762-8962	3G	welded wire with precast panel concrete facing	HDG welded wire	0.0°	30	30	n.a.	yes	no	Preapproved-Temporary 1998	Must use Cast-in-place fascia; Precast fascia not preapproved at this time; See Note 1.
Reinforced Earth® (MSE system)	The Reinforced Earth® Company (303) 790-1481	3C, 3D	5'x5' Cruciform or square precast panels 5'x10' rectangular precast panels	HDG steel strip (HDG welded wire not preapproved)	0.0°	40	40	n.a.	yes	no	Preapproved 2012	In place of AASHTO default pullout friction factors, the following may be used with HDG steel strip and MSE Wall Granular Backfill: F* @ top = 3.0; linear to F* @ 20' = tanφ; F* @ below 20' = tanφ See Note 1.
Retained Earth® (MSE system)	The Reinforced Earth® Company (303) 790-1481	3C, 3D	5'x5' and 5'x10' precast panels	HDG welded wire	0.0°	40	40	n.a.	yes	no	Preapproved-Temporary 2000	See Note 1.
Pyramid® (MSE system)	The Reinforced Earth® Company (303) 790-1481	3A	dry cast modular block	HDG welded wire	0.0°	0	20	n.a.	no	no	Preapproved-Temporary 2003	See Note 1.
Terratrel® Concrete Clad Face	The Reinforced Earth® Company (303) 790-1481	3G	welded wire with CIP concrete fascia	HDG welded wire	0.0°	0	25	n.a.	yes	no	Preapproved-Temporary 2003	Must use CIP concrete fascia

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MSE Plus™ (precast panel face MSE system)	SSL™, LLC (831) 430-9300	15.2.4.2 3C, 3D	5'x5', 5'X6', 5'x10', and 5'x12' precast panels	HDG welded wire	0.0°	50	50	n.a.	yes	yes	Preapproved 2013	See Note 1.
MSE Plus™ (welded wire wall MSE system)	SSL™, LLC (831) 430-9300	3E	welded wire	HDG welded wire	0.0°	n.a.	33	n.a.	yes	yes	Preapproved 2014	Must use exposed welded wire face; Vegetated face, gunite face covering, and shotcrete face covering not preapproved at this time; See Note 1.
ARES® (MSE system)	Tensar® International Corp. (360) 779 5555	3C, 3D	5'x5' and 5'x9' precast panels	geogrid	0.0°	50	50	n.a.	yes	yes	Preapproved 2012	Must use Type 3C or 3D facing; Full height panels not preapproved at this time; See Note 1; See Note 2.
MESA® (MSE system)	Tensar® International Corp. (360) 779 5555 B11	3A	hollow dry cast modular block	geogrid	0.5°	50	50	n.a.	yes	yes	Preapproved 2012	Must use geogrid from ODOT QPL; Must use geogrid design values per ODOT QPL; Must use block/geogrid combinations with valid connection test data to support the design; See Note 1; See Note 2.
LANDMARK® (MSE system)	Anchor® Wall Systems, Inc. (949) 363-6663	3A	hollow dry cast modular block	geogrid	0.0°	n.a.	30	n.a.	yes	yes	Preapproved 2012	Must use geogrid from ODOT QPL; Must use geogrid design values per ODOT QPL; Must use block/geogrid combinations with valid connection test data to support the design; See Note 1; See Note 2.
Ultrablock™ (prefabricated modular system)	Ultrablock, Inc. 800-377-3877	2F	wet cast modular block	n.a.	5.7°	n.a.	12	4	yes	no	Preapproved Temporary 2003	See Note 1;
Ultrablock™ (MSE system)	Ultrablock, Inc. 800-377-3877	3B	wet cast modular block	geogrid	0.0°	0	15	n.a.	no	no	Preapproved Temporary 2003	Only 0.0° (vertical) face batter preapproved; Must use geogrid from ODOT QPL; Must use geogrid design values per ODOT QPL; Must use block/geogrid combinations with valid connection test data to support the design; See Note 1; See Note 2.

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GRAVIX® DOT Precast Wall System	Earth Wall Products (678) 594-3451	2G	5'x8' face 2' - 24' stem embedment length precast units	n.a.	0.0°	n.a.	32	n.a.	yes	no	Preapproved 2019	See Note 1.
KeySystem III Retaining Wall System (KeySystem III)	Keystone Retaining Wall Systems LLC (952) 837-8228	3A	hollow dry cast modular block	geogrid	1H:64V (<1°)	n.a.	25	n.a.	yes	no	Preapproved 2020	Must use geogrid from ODOT QPL; Must use geogrid design values per ODOT QPL; Perform calculations with sustained load connection test data for no pins in place, but construct KeySystem III MSE retaining wall system with fiberglass pins in place; See Note 1; See Note 2.

Note 1: All systems must meet the requirements of the ODOT GDM, AASHTO LRFD, Agency construction specifications.

Note 2: Special height limits apply to Bridge retaining walls with geogrid soil reinforcement supporting loads from bridge abutment spread footings (see GDM 15.6.16). **16.6.16**