



Product Specification

Tensar Structural Geogrid

- **UX800MSE Structural Geogrid**
- **UX1000MSE Structural Geogrid**
- **UX1100MSE Structural Geogrid**
- **UX1400MSE Structural Geogrid**
- **UX1500MSE Structural Geogrid**
- **UX1600MSE Structural Geogrid**
- **UX1700MSE Structural Geogrid**



Product Specification - Structural Geogrid UX800MSE

Tensar Earth Technologies, Inc. reserves the right to change its product specifications at any time. It is the responsibility of the specifier and purchaser to ensure that product specifications used for design and procurement purposes are current and consistent with the products used in each instance. Please contact Tensar Earth Technologies, Inc. at 800-836-7271 for assistance.

Product Type: Integrally Formed Structural Geogrid
Polymer: Polypropylene
Load Transfer Mechanism: Positive Mechanical Interlock
Recommended Applications: MESA System (Segmental Block Walls), SierraScape System (Welded Wire Walls)

Product Properties

Index Properties

	Units	MD Values ¹
▪ Tensile Strength @ 5% Strain ²	kN/m (lb/ft)	25 (1,710)
▪ Ultimate Tensile Strength ²	kN/m (lb/ft)	50 (3,430)
▪ Junction Strength ³	kN/m (lb/ft)	47 (3,180)
▪ Flexural Stiffness ⁴	mg-cm	500,000

Durability

▪ Resistance to Long Term Degradation ⁵	%	100
▪ Resistance to UV Degradation ⁶	%	95

Load Capacity

▪ Maximum Allowable (Design) Strength ⁷	kN/m (lb/ft)	12.5 (860)
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Recommended Allowable Strength Reduction Factors⁷

▪ Minimum Reduction Factor for Installation Damage (RF _{ID}) ⁸	1.05
▪ Minimum Reduction Factor for Creep (RF _{CR})	3.80
▪ Minimum Reduction Factor for Durability (RF _D)	1.00

Dimensions and Delivery

The structural geogrid shall be delivered to the jobsite in roll form with each roll individually identified and nominally measuring 1.33 meters (4.36 feet) in width and 76.2 meters (250.0 feet) in length. A typical truckload quantity is 324 rolls.

Notes:

1. Unless indicated otherwise, values shown are minimum average roll values determined in accordance with ASTM D4759. Brief descriptions of test procedures are given in the following notes. Complete descriptions of test procedures are available on request from Tensar Earth Technologies, Inc.
2. True resistance to elongation when initially subjected to a load measured via ASTM D6637 without deforming test materials under load before measuring such resistance or employing "secant" or "offset" tangent methods of measurement so as to overstate tensile properties.
3. Load transfer capability determined in accordance with GRI-GG2-87.
4. Resistance to bending force determined in accordance with ASTM D5732-95, using specimen dimensions of 864 millimeters in length by one aperture in width.
5. Resistance to loss of load capacity or structural integrity when subjected to chemically aggressive environments in accordance with EPA 9090 immersion testing.
6. Resistance to loss of load capacity or structural integrity when subjected to 500 hours of ultraviolet light and aggressive weathering in accordance with ASTM D4355.
7. Reduction factors are used to calculate the geogrid strength available for resisting force in long-term load bearing applications. Allowable Strength (T_{allow}) is determined by reducing the ultimate tensile strength (T_{ult}) by reduction factors for installation damage (RF_{ID}), creep (RF_{CR}) and chemical/biological durability (RF_D = RF_{CD}·RF_{BD}) per GRI-GG4 [$T_{allow} = T_{ult}/(RF_{ID} \cdot RF_{CR} \cdot RF_D)$]. Recommended minimum reduction factors are based on product-specific testing. Project specifications, standard public agency specifications and/or design code requirements may require higher reduction factors. **It is the responsibility of the designer to ensure that appropriate reduction factors are applied.** Contact Tensar Earth Technologies, Inc. for further recommendations.
8. Minimum value is based on Installation Damage Testing in Sand, Silt, and Clay soils. Coarser soils require increased RF_{ID} values.

Tensar Earth Technologies, Inc. warrants that at the time of delivery the geogrid furnished hereunder shall be of the quality and specification stated herein. If the geogrid does not meet the specifications on this page and Tensar is notified prior to installation, Tensar will replace the geogrid at no cost to the customer.

This product specification supersedes all prior specifications for the product described above and is not applicable to any products shipped prior to August 1, 2005



Product Specification - Structural Geogrid UX1000MSE

Tensor Earth Technologies, Inc. reserves the right to change its product specifications at any time. It is the responsibility of the specifier and purchaser to ensure that product specifications used for design and procurement purposes are current and consistent with the products used in each instance. Please contact Tensor Earth Technologies, Inc. at 800-836-7271 for assistance

Product Type: Integrally Formed Structural Geogrid
Polymer: High Density Polyethylene
Load Transfer Mechanism: Positive Mechanical Interlock
Recommended Applications: MESA System (Segmental Block Walls), SierraScape System (Welded Wire Walls)

Product Properties

Index Properties	Units	MD Values ¹
▪ Tensile Strength @ 5% Strain ²	kN/m (lb/ft)	23 (1,570)
▪ Ultimate Tensile Strength ²	kN/m (lb/ft)	46 (3,150)
▪ Junction Strength ³	kN/m (lb/ft)	43 (2,950)
▪ Flexural Stiffness ⁴	mg-cm	400,000
Durability		
▪ Resistance to Long Term Degradation ⁵	%	100
▪ Resistance to UV Degradation ⁶	%	95
Load Capacity		
▪ Maximum Allowable (Design) Strength ⁷	kN/m (lb/ft)	17.7 (1,210)
Recommended Allowable Strength Reduction Factors⁷		
▪ Minimum Reduction Factor for Installation Damage (RF _{ID}) ⁸		1.05
▪ Minimum Reduction Factor for Creep (RF _{CR})		2.48
▪ Minimum Reduction Factor for Durability (RF _D)		1.00

Dimensions and Delivery

The structural geogrid shall be delivered to the jobsite in roll form with each roll individually identified and nominally measuring 1.33 meters (4.36 feet) in width and 76.2 meters (250.0 feet) in length. A typical truckload quantity is 432 rolls.

Notes:

1. Unless indicated otherwise, values shown are minimum average roll values determined in accordance with ASTM D4759. Brief descriptions of test procedures are given in the following notes. Complete descriptions of test procedures are available on request from Tensor Earth Technologies, Inc.
2. True resistance to elongation when initially subjected to a load measured via ASTM D6637 without deforming test materials under load before measuring such resistance or employing "secant" or "offset" tangent methods of measurement so as to overstate tensile properties.
3. Load transfer capability determined in accordance with GRI-GG2-87.
4. Resistance to bending force determined in accordance with ASTM D5732-95, using specimen dimensions of 864 millimeters in length by one aperture in width.
5. Resistance to loss of load capacity or structural integrity when subjected to chemically aggressive environments in accordance with EPA 9090 immersion testing.
6. Resistance to loss of load capacity or structural integrity when subjected to 500 hours of ultraviolet light and aggressive weathering in accordance with ASTM D4355.
7. Reduction factors are used to calculate the geogrid strength available for resisting force in long-term load bearing applications. Allowable Strength (T_{allow}) is determined by reducing the ultimate tensile strength (T_{ult}) by reduction factors for installation damage (RF_{ID}), creep (RF_{CR}) and chemical/biological durability (RF_D = RF_{CD}·RF_{BD}) per GRI-GG4 [$T_{allow} = T_{ult}/(RF_{ID}·RF_{CR}·RF_D)$]. Recommended minimum reduction factors are based on product-specific testing. Project specifications, standard public agency specifications and/or design code requirements may require higher reduction factors. **It is the responsibility of the designer to ensure that appropriate reduction factors are applied.** Contact Tensor Earth Technologies, Inc. for further recommendations.
8. Minimum value is based on Installation Damage Testing in Sand, Silt, and Clay soils. Coarser soils require increased RF_{ID} values.

Tensor Earth Technologies, Inc. warrants that at the time of delivery the geogrid furnished hereunder shall be of the quality and specification stated herein. If the geogrid does not meet the specifications on this page and Tensor is notified prior to installation, Tensor will replace the geogrid at no cost to the customer.

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Product Specification - Structural Geogrid UX1100MSE

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Product Type: Integrally Formed Structural Geogrid
Polymer: High Density Polyethylene
Load Transfer Mechanism: Positive Mechanical Interlock
Recommended Applications: MESA System (Segmental Block Walls), SierraScape System (Welded Wire Walls)

Product Properties

Index Properties	Units	MD Values ¹
▪ Tensile Strength @ 5% Strain ²	kN/m (lb/ft)	27 (1,850)
▪ Ultimate Tensile Strength ²	kN/m (lb/ft)	58 (3,970)
▪ Junction Strength ³	kN/m (lb/ft)	54 (3,690)
▪ Flexural Stiffness ⁴	mg-cm	500,000
Durability		
▪ Resistance to Long Term Degradation ⁵	%	100
▪ Resistance to UV Degradation ⁶	%	95
Load Capacity		
▪ Maximum Allowable (Design) Strength ⁷	kN/m (lb/ft)	23.6 (1,620)
Recommended Allowable Strength Reduction Factors⁷		
▪ Minimum Reduction Factor for Installation Damage (RF _{ID}) ⁸		1.05
▪ Minimum Reduction Factor for Creep (RF _{CR})		2.34
▪ Minimum Reduction Factor for Durability (RF _D)		1.00

Dimensions and Delivery

The structural geogrid shall be delivered to the jobsite in roll form with each roll individually identified and nominally measuring 1.33 meters (4.36 feet) in width and 76.2 meters (250.0 feet) in length. A typical truckload quantity is 432 rolls.

Notes:

- Unless indicated otherwise, values shown are minimum average roll values determined in accordance with ASTM D4759. Brief descriptions of test procedures are given in the following notes. Complete descriptions of test procedures are available on request from Tensor Earth Technologies, Inc.
- True resistance to elongation when initially subjected to a load measured via ASTM D6637 without deforming test materials under load before measuring such resistance or employing "secant" or "offset" tangent methods of measurement so as to overstate tensile properties.
- Load transfer capability determined in accordance with GRI-GG2-87.
- Resistance to bending force determined in accordance with ASTM D5732-95, using specimen dimensions of 864 millimeters in length by one aperture in width.
- Resistance to loss of load capacity or structural integrity when subjected to chemically aggressive environments in accordance with EPA 9090 immersion testing.
- Resistance to loss of load capacity or structural integrity when subjected to 500 hours of ultraviolet light and aggressive weathering in accordance with ASTM D4355.
- Reduction factors are used to calculate the geogrid strength available for resisting force in long-term load bearing applications. Allowable Strength (T_{allow}) is determined by reducing the ultimate tensile strength (T_{ult}) by reduction factors for installation damage (RF_{ID}), creep (RF_{CR}) and chemical/biological durability (RF_D = RF_{CD}·RF_{BD}) per GRI-GG4 [$T_{allow} = T_{ult}/(RF_{ID} \cdot RF_{CR} \cdot RF_D)$]. Recommended minimum reduction factors are based on product-specific testing. Project specifications, standard public agency specifications and/or design code requirements may require higher reduction factors. **It is the responsibility of the designer to ensure that appropriate reduction factors are applied.** Contact Tensor Earth Technologies, Inc. for further recommendations.
- Minimum value is based on Installation Damage Testing in Sand, Silt, and Clay soils. Coarser soils require increased RF_{ID} values.

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Product Specification - Structural Geogrid UX1400MSE

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Product Type: Integrally Formed Structural Geogrid
Polymer: High Density Polyethylene
Load Transfer Mechanism: Positive Mechanical Interlock
Recommended Applications: MESA System (Segmental Block Walls), ARES System (Panel Walls), SierraScape System (Welded Wire Walls)

Product Properties

Index Properties

	Units	MD Values ¹
▪ Tensile Strength @ 5% Strain ²	kN/m (lb/ft)	31 (2,130)
▪ Ultimate Tensile Strength ²	kN/m (lb/ft)	70 (4,800)
▪ Junction Strength ³	kN/m (lb/ft)	66 (4,520)
▪ Flexural Stiffness ⁴	mg-cm	730,000

Durability

▪ Resistance to Long Term Degradation ⁵	%	100
▪ Resistance to UV Degradation ⁶	%	95

Load Capacity

▪ Maximum Allowable (Design) Strength ⁷	kN/m (lb/ft)	30.2 (2,070)
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Recommended Allowable Strength Reduction Factors⁷

▪ Minimum Reduction Factor for Installation Damage (RF _{ID}) ⁸	1.05
▪ Minimum Reduction Factor for Creep (RF _{CR})	2.21
▪ Minimum Reduction Factor for Durability (RF _D)	1.00

Dimensions and Delivery

The structural geogrid shall be delivered to the jobsite in roll form with each roll individually identified and nominally measuring 1.33 meters (4.36 feet) in width and 76.2 meters (250.0 feet) in length. A typical truckload quantity is 432 rolls.

Notes:

1. Unless indicated otherwise, values shown are minimum average roll values determined in accordance with ASTM D4759. Brief descriptions of test procedures are given in the following notes. Complete descriptions of test procedures are available on request from Tensor Earth Technologies, Inc.
2. True resistance to elongation when initially subjected to a load measured via ASTM D6637 without deforming test materials under load before measuring such resistance or employing "secant" or "offset" tangent methods of measurement so as to overstate tensile properties.
3. Load transfer capability determined in accordance with GRI-GG2-87.
4. Resistance to bending force determined in accordance with ASTM D5732-95, using specimen dimensions of 864 millimeters in length by one aperture in width.
5. Resistance to loss of load capacity or structural integrity when subjected to chemically aggressive environments in accordance with EPA 9090 immersion testing.
6. Resistance to loss of load capacity or structural integrity when subjected to 500 hours of ultraviolet light and aggressive weathering in accordance with ASTM D4355.
7. Reduction factors are used to calculate the geogrid strength available for resisting force in long-term load bearing applications. Allowable Strength (T_{allow}) is determined by reducing the ultimate tensile strength (T_{ult}) by reduction factors for installation damage (RF_{ID}), creep (RF_{CR}) and chemical/biological durability (RF_D = RF_{CD}·RF_{BD}) per GRI-GG4 [$T_{allow} = T_{ult}/(RF_{ID}·RF_{CR}·RF_D)$]. Recommended minimum reduction factors are based on product-specific testing. Project specifications, standard public agency specifications and/or design code requirements may require higher reduction factors. **It is the responsibility of the designer to ensure that appropriate reduction factors are applied.** Contact Tensor Earth Technologies, Inc. for further recommendations.
8. Minimum value is based on Installation Damage Testing in Sand, Silt, and Clay soils. Coarser soils require increased RF_{ID} values.

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Product Specification - Structural Geogrid UX1500MSE

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Product Type: Integrally Formed Structural Geogrid
Polymer: High Density Polyethylene
Load Transfer Mechanism: Positive Mechanical Interlock
Recommended Applications: MESA System (Segmental Block Walls), ARES System (Panel Walls), SierraScape System (Welded Wire Walls)

Product Properties

Index Properties	Units	MD Values ¹
▪ Tensile Strength @ 5% Strain ²	kN/m (lb/ft)	52 (3,560)
▪ Ultimate Tensile Strength ²	kN/m (lb/ft)	114 (7,810)
▪ Junction Strength ³	kN/m (lb/ft)	105 (7,200)
▪ Flexural Stiffness ⁴	mg-cm	5,100,000
Durability		
▪ Resistance to Long Term Degradation ⁵	%	100
▪ Resistance to UV Degradation ⁶	%	95
Load Capacity		
▪ Maximum Allowable (Design) Strength ⁷	kN/m (lb/ft)	45.2 (3,100)
Recommended Allowable Strength Reduction Factors⁷		
▪ Minimum Reduction Factor for Installation Damage (RF _{ID}) ⁸		1.05
▪ Minimum Reduction Factor for Creep (RF _{CR})		2.40
▪ Minimum Reduction Factor for Durability (RF _D)		1.00

Dimensions and Delivery

The structural geogrid shall be delivered to the jobsite in roll form with each roll individually identified and nominally measuring 1.33 meters (4.36 feet) in width and 61.0 meters (200.0 feet) in length. A typical truckload quantity is 324 rolls.

Notes:

1. Unless indicated otherwise, values shown are minimum average roll values determined in accordance with ASTM D4759. Brief descriptions of test procedures are given in the following notes. Complete descriptions of test procedures are available on request from Tensor Earth Technologies, Inc.
2. True resistance to elongation when initially subjected to a load measured via ASTM D6637 without deforming test materials under load before measuring such resistance or employing "secant" or "offset" tangent methods of measurement so as to overstate tensile properties.
3. Load transfer capability determined in accordance with GRI-GG2-87.
4. Resistance to bending force determined in accordance with ASTM D5732-95, using specimen dimensions of 864 millimeters in length by one aperture in width.
5. Resistance to loss of load capacity or structural integrity when subjected to chemically aggressive environments in accordance with EPA 9090 immersion testing.
6. Resistance to loss of load capacity or structural integrity when subjected to 500 hours of ultraviolet light and aggressive weathering in accordance with ASTM D4355.
7. Reduction factors are used to calculate the geogrid strength available for resisting force in long-term load bearing applications. Allowable Strength (T_{allow}) is determined by reducing the ultimate tensile strength (T_{ult}) by reduction factors for installation damage (RF_{ID}), creep (RF_{CR}) and chemical/biological durability (RF_D = RF_{CD}·RF_{BD}) per GRI-GG4 [$T_{allow} = T_{ult}/(RF_{ID}·RF_{CR}·RF_D)$]. Recommended minimum reduction factors are based on product-specific testing. Project specifications, standard public agency specifications and/or design code requirements may require higher reduction factors. **It is the responsibility of the designer to ensure that appropriate reduction factors are applied.** Contact Tensor Earth Technologies, Inc. for further recommendations.
8. Minimum value is based on Installation Damage Testing in Sand, Silt, and Clay soils. Coarser soils require increased RF_{ID} values.

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Product Specification - Structural Geogrid UX1600MSE

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Product Type: Integrally Formed Structural Geogrid
Polymer: High Density Polyethylene
Load Transfer Mechanism: Positive Mechanical Interlock
Recommended Applications: MESA System (Segmental Block Walls), ARES System (Panel Walls), SierraScape System (Welded Wire Walls)

Product Properties

Index Properties

	Units	MD Values ¹
▪ Tensile Strength @ 5% Strain ²	kN/m (lb/ft)	58 (3,980)
▪ Ultimate Tensile Strength ²	kN/m (lb/ft)	144 (9,870)
▪ Junction Strength ³	kN/m (lb/ft)	135 (9,250)
▪ Flexural Stiffness ⁴	mg-cm	6,000,000

Durability

▪ Resistance to Long Term Degradation ⁵	%	100
▪ Resistance to UV Degradation ⁶	%	95

Load Capacity

▪ Maximum Allowable (Design) Strength ⁷	kN/m (lb/ft)	59.9 (4,110)
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Recommended Allowable Strength Reduction Factors⁷

▪ Minimum Reduction Factor for Installation Damage (RF _{ID}) ⁸	1.05
▪ Minimum Reduction Factor for Creep (RF _{CR})	2.29
▪ Minimum Reduction Factor for Durability (RF _D)	1.00

Dimensions and Delivery

The structural geogrid shall be delivered to the jobsite in roll form with each roll individually identified and nominally measuring 1.33 meters (4.36 feet) in width and 61.0 meters (200.0 feet) in length. A typical truckload quantity is 216 rolls.

Notes:

1. Unless indicated otherwise, values shown are minimum average roll values determined in accordance with ASTM D4759. Brief descriptions of test procedures are given in the following notes. Complete descriptions of test procedures are available on request from Tensar Earth Technologies, Inc.
2. True resistance to elongation when initially subjected to a load measured via ASTM D6637 without deforming test materials under load before measuring such resistance or employing "secant" or "offset" tangent methods of measurement so as to overstate tensile properties.
3. Load transfer capability determined in accordance with GRI-GG2-87.
4. Resistance to bending force determined in accordance with ASTM D5732-95, using specimen dimensions of 864 millimeters in length by one aperture in width.
5. Resistance to loss of load capacity or structural integrity when subjected to chemically aggressive environments in accordance with EPA 9090 immersion testing.
6. Resistance to loss of load capacity or structural integrity when subjected to 500 hours of ultraviolet light and aggressive weathering in accordance with ASTM D4355.
7. Reduction factors are used to calculate the geogrid strength available for resisting force in long-term load bearing applications. Allowable Strength (T_{allow}) is determined by reducing the ultimate tensile strength (T_{ult}) by reduction factors for installation damage (RF_{ID}), creep (RF_{CR}) and chemical/biological durability (RF_D = RF_{CD}·RF_{BD}) per GRI-GG4 [$T_{allow} = T_{ult}/(RF_{ID}·RF_{CR}·RF_{D})$]. Recommended minimum reduction factors are based on product-specific testing. Project specifications, standard public agency specifications and/or design code requirements may require higher reduction factors. **It is the responsibility of the designer to ensure that appropriate reduction factors are applied.** Contact Tensar Earth Technologies, Inc. for further recommendations.
8. Minimum value is based on Installation Damage Testing in Sand, Silt, and Clay soils. Coarser soils require increased RF_{ID} values.

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Product Specification - Structural Geogrid UX1700MSE

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Product Type: Integrally Formed Structural Geogrid
Polymer: High Density Polyethylene
Load Transfer Mechanism: Positive Mechanical Interlock
Recommended Applications: MESA System (Segmental Block Walls), ARES System (Panel Walls), SierraScape System (Welded Wire Walls)

Product Properties

Index Properties	Units	MD Values ¹
▪ Tensile Strength @ 5% Strain ²	kN/m (lb/ft)	75 (5,140)
▪ Ultimate Tensile Strength ²	kN/m (lb/ft)	175 (11,990)
▪ Junction Strength ³	kN/m (lb/ft)	160 (10,970)
▪ Flexural Stiffness ⁴	mg-cm	9,075,000
Durability		
▪ Resistance to Long Term Degradation ⁵	%	100
▪ Resistance to UV Degradation ⁶	%	95
Load Capacity		
▪ Maximum Allowable (Design) Strength ⁷	kN/m (lb/ft)	75.1 (5,140)
Recommended Allowable Strength Reduction Factors⁷		
▪ Minimum Reduction Factor for Installation Damage (RF _{ID}) ⁸		1.05
▪ Minimum Reduction Factor for Creep (RF _{CR})		2.22
▪ Minimum Reduction Factor for Durability (RF _D)		1.00

Dimensions and Delivery

The structural geogrid shall be delivered to the jobsite in roll form with each roll individually identified and nominally measuring 1.33 meters (4.36 feet) in width and 61.0 meters (200.0 feet) in length. A typical truckload quantity is 144 rolls.

Notes:

1. Unless indicated otherwise, values shown are minimum average roll values determined in accordance with ASTM D4759. Brief descriptions of test procedures are given in the following notes. Complete descriptions of test procedures are available on request from Tensor Earth Technologies, Inc.
2. True resistance to elongation when initially subjected to a load measured via ASTM D6637 without deforming test materials under load before measuring such resistance or employing "secant" or "offset" tangent methods of measurement so as to overstate tensile properties.
3. Load transfer capability determined in accordance with GRI-GG2-87.
4. Resistance to bending force determined in accordance with ASTM D5732-95, using specimen dimensions of 864 millimeters in length by one aperture in width.
5. Resistance to loss of load capacity or structural integrity when subjected to chemically aggressive environments in accordance with EPA 9090 immersion testing.
6. Resistance to loss of load capacity or structural integrity when subjected to 500 hours of ultraviolet light and aggressive weathering in accordance with ASTM D4355.
7. Reduction factors are used to calculate the geogrid strength available for resisting force in long-term load bearing applications. Allowable Strength (T_{allow}) is determined by reducing the ultimate tensile strength (T_{ult}) by reduction factors for installation damage (RF_{ID}), creep (RF_{CR}) and chemical/biological durability (RF_D = RF_{CD}·RF_{BD}) per GRI-GG4 [$T_{allow} = T_{ult}/(RF_{ID}·RF_{CR}·RF_D)$]. Recommended minimum reduction factors are based on product-specific testing. Project specifications, standard public agency specifications and/or design code requirements may require higher reduction factors. **It is the responsibility of the designer to ensure that appropriate reduction factors are applied.** Contact Tensor Earth Technologies, Inc. for further recommendations.
8. Minimum value is based on Installation Damage Testing in Sand, Silt, and Clay soils. Coarser soils require increased RF_{ID} values.

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