GEOGRID SPECIFICATIONS AND CONNECTION TESTING RESULTS FOR:

AB Full-Size Units

Geogrid Type	Long Term Allowable Design Strength, LTDS, lb/ft (kN/m)			Reduction Factor Creep, RFcr	Peak Connection Strength Equations, P, lb/ft (kN/m)		Normal Load Intercept lb/ft (kN/m)
	Sand-Silt-Clay	Sand-Gravel	Gravel		Segment 1	Segment 2	
Strata Systems, 380 Dahlonega Road, Cummings, GA 30040 800-680-7750							
Strata SGU 60	2343 (34.4)	2062 (30.1)	1909 (27.8)	1.45	T_u = 1165 lb/ft + Ntan(20.0°) (T_u = 17.0 kN/m + Ntan(20.0°))	-	-
Strata SGU 80	3125 (45.6)	2750 (40.1)	2546 (37.2)	1.45	T_u = 1235 lb/ft + Ntan(24.0°) (T_u = 18.02 kN/m + Ntan(24.0°))	-	-
Strata SGU 120	4686 (68.4)	4686 (68.4)	4482 (65.4)	1.45	T_u = 1340 lb/ft + Ntan(33.0°) (T_u = 19.56 kN/m+Ntan(33.0°))	-	-
Tencate Nicolon, 365 South Holland Drive, Pendergrass, GA 30567 888-795-0808							
Miragrid 2XT	1142 (16.60)	1090 (15.90)	960 (14.0)	1.45	T_{u1} = 125.60 lb/ft + Ntan(58.48°) (T_{u1} = 1.80 kN/m + Ntan(58.48°))	T_{u2} = 1623.5 lb/ft (T_{u2} = 23.65 kN/m)	918.6 (13.40)
Miragrid 3XT	1999 (29.10)	1908 (27.70)	1676 (24.40)	1.45	T_u = 1193 lb/ft + Ntan(29°) (T_u = 17.40 kN/m + Ntan(29°))	-	-
Miragrid 5XT	2684 (39.0)	2562 (37.30)	2255 (32.80)	1.45	T_{u1} = 1287 lb/ft + Ntan(29°) (T_{u1} = 14.30 kN/m + Ntan(29°))	-	-
Miragrid 7XT	3370 (49.10)	3217 (46.90)	2831 (41.20)	1.45	T_u = 1065.4 lb/ft + Ntan(25.62°) (T_u = 15.52 kN/m + Ntan(25.62°))	-	-
Miragrid 8XT	4226 (61.60)	4034 (58.80)	3550 (51.70)	1.45	T_{u1} = 1063 lb/ft + Ntan(40°) (T_{u1} = 15.51 kN/m + Ntan(40°))	T_{u2} = 2872 lb/ft (T_{u2} = 41.9 kN/m)	2155.9 (31.45)
Miragrid 10XT	5426 (79.0)	5179 (75.40)	4558 (66.40)	1.45	T_{u1} = 513 lb/ft + Ntan(52°) (T_{u1} = 7.48 kN/m + Ntan(52°))	T_{u2} = 1426 lb/ft + Ntan(23°) (T_{u2} = 20.81 kN/m + Ntan(23°))	1067.3 (15.57)
Huesker - 11107 - A South Commerce Blvd, Charlotte, NC 28273 800-942-9418							
Fortrac 35T	1197 (17.4)	1175 (17.0)	1097 (15.9)	1.522	T_{u1} = 911 lb/ft + Ntan(6.8°) (T_{u1} = 13.3 kN/m + Ntan(6.8°))	-	-
Fortrac 55T	1898 (27.6)	1864 (27.1)	1815 (26.3)	1.522	T_{u1} = 1070.3 lb/ft + Ntan(15.1°) (T_{u1} = 15.62 kN/m + Ntan(15.1°))	-	-
Fortrac 80T	2979 (43.3)	2950 (42.8)	2813 (40.9)	1.522	T_{u1} = 1250.7 lb/ft + Ntan(18.3°) (T_{u1} = 18.25 kN/m + Ntan(18.3°))	-	-

AB Fieldstone Units

Geogrid Type	Long Term Allowable Design Strength, LTDS, lb/ft (kN/m)			Reduction Factor Creep, RFcr	Peak Connection Strength Equations, P, lb/ft (kN/m)		Normal Load Intercept lb/ft (kN/m)
	Sand-Silt-Clay	Sand-Gravel	Gravel		Segment 1	Segment 2	
Strata Systems, 380 Dahlonega Road, Cummings, GA 30040 800-680-7750							
Strata SGU 60	2343 (34.4)	2062 (30.1)	1909 (27.8)	1.45	T_u = 1165 lb/ft + Ntan(20.0°) (T_u = 17.0 kN/m + Ntan(20.0°))	-	-
Strata SGU 80	3125 (45.6)	2750 (40.1)	2546 (37.2)	1.45	T_u = 1235 lb/ft + Ntan(24.0°) (T_u = 18.02 kN/m + Ntan(24.0°))	-	-
Strata SGU 120	4686 (68.4)	4686 (68.4)	4482 (65.4)	1.45	T_u = 1340 lb/ft + Ntan(33.0°) (T_u = 19.56 kN/m+Ntan(33.0°))	-	-
Tencate Nicolon, 365 South Holland Drive, Pendergrass, GA 30567 888-795-0808							
Miragrid 2XT	1142 (16.6)	1090 (15.8)	960 (13.9)	1.45	T_{u1} = 125.5lb/ft + Ntan(58.5°) (T_{u1} = 1.8 kN/m + Ntan(58.5°))	T_{u2} = 1623.5 lb/ft (T_{u2} = 23.65 kN/m)	918.0 (13.3)
Miragrid 3XT	1999 (29.0)	1908 (27.7)	1676 (24.4)	1.45	T_u = 1193 lb/ft + Ntan(29°) (T_u = 17.4 kN/m + Ntan(29°))	-	-
Miragrid 5XT	2684 (39.0)	2562 (37.2)	2255 (32.7)	1.45	T_{u1} = 1287 lb/ft + Ntan(29°) (T_{u1} = 18.7 kN/m + Ntan(29°))	-	-

The information in this chart has been taken from published literature and is believed to be accurate. Consult the Allan Block Engineering Department for details at 800-899-5309.

Table B-1 Pullout Resistance Equations

ALLAN BLOCK GEOGRID DESIGN PARAMETERS

ALLAN BLOCK CORPORATION
Ph. 952-835-5309
Fax. 952-835-0013
allanblock.com

ALLAN BLOCK TYPE: AB Stones, AB Classic, AB Vertical, AB Dover
GEOGRID TYPE: Stratagrid SGU 60
TESTING METHOD: ASTM D 6638
TESTING FACILITY: NCMA
TEST DATE: October 8th, 2019

CONNECTION STRENGTH TEST DATA

Test Number	Normal Load, lb/ft	Ultimate Connection, lb/ft
1	600	1326
2	1200	1663
3	1800	1769
4	1800	1855
5	1800	1927
6	2400	2096
7	3000	2226

DESIGN EQUATIONS

Ultimate Connection Strength

$T_u = 1165\ lb/ft + N \tan(20^o)$

$(T_u = 17.00\ kN/m + N \tan(20^o))$

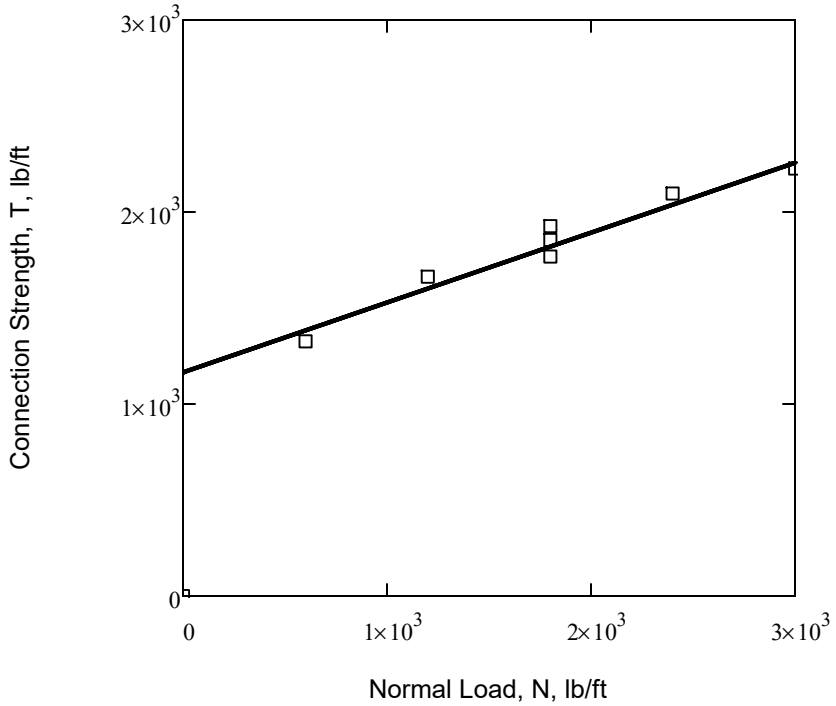
GEOGRID STRENGTH PARAMETERS

Long Term Allowable Design Strength

Sand-Silt-Clay: 2343 lb/ft (34.2 kN/m)
Sand-Gravel: 2062 lb/ft (30.1 kN/m)
Gravel: 1909 lb/ft (27.86 kN/m)

Reduction Factor Creep $RF_{cr} = 1.45$

ALLAN BLOCK & STRATAGRID SGU 60 CONNECTION STRENGTH



Updated - January 5, 2022

ALLAN BLOCK GEOGRID DESIGN PARAMETERS

ALLAN BLOCK CORPORATION
Ph. 952-835-5309
Fax. 952-835-0013
allanblock.com

ALLAN BLOCK TYPE: AB Stones, AB Classic, AB Vertical, AB Dover
GEOGRID TYPE: Stratagrid SGU 80
TESTING METHOD: ASTM D 6638
TESTING FACILITY: NCMA
TEST DATE: October 8th, 2019

CONNECTION STRENGTH TEST DATA

Test Number	Normal Load, lb/ft	Ultimate Connection, lb/ft
1	600	1408
2	1320	1850
3	2100	2344
4	2100	2161
5	2100	2250
6	2760	2495
7	3600	2779

DESIGN EQUATIONS

Ultimate Connection Strength

$T_u = 1235$ lb/ft + N tan (24°)

($T_u = 18.02$ kN/m + N tan (24°))

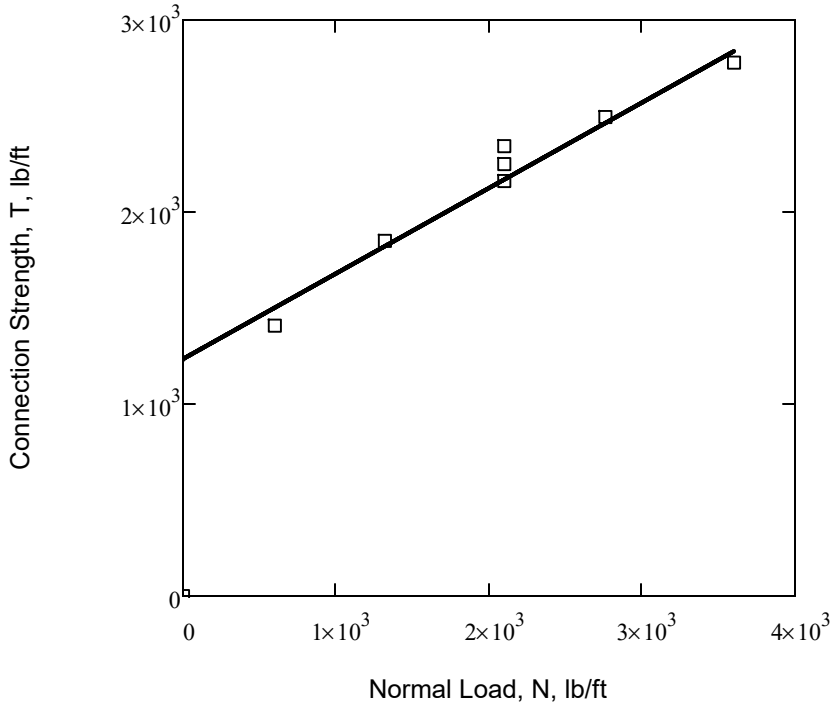
GEOGRID STRENGTH PARAMETERS

Long Term Allowable Design Strength

Sand-Silt-Clay: 3125 lb/ft (45.6 kN/m)
Sand-Gravel: 2750 lb/ft (40.1 kN/m)
Gravel: 2546 lb/ft (37.2 kN/m)

Reduction Factor Creep $RF_{cr} = 1.45$

ALLAN BLOCK & STRATAGRID SGU 80 CONNECTION STRENGTH



Updated - January 5, 2022

ALLAN BLOCK GEOGRID DESIGN PARAMETERS

ALLAN BLOCK CORPORATION
Ph. 952-835-5309
Fax. 952-835-0013
allanblock.com

ALLAN BLOCK TYPE: AB Stones, AB Classic, AB Vertical, AB Dover
GEOGRID TYPE: Stratagrid SGU 120
TESTING METHOD: ASTM D 6638
TESTING FACILITY: NCMA
TEST DATE: October 8th, 2019

CONNECTION STRENGTH TEST DATA

Test Number	Normal Load, lb/ft	Ultimate Connection, lb/ft
1	600	1608
2	1500	2364
3	2400	2952
4	2400	2860
5	2400	3010
6	3300	3465
7	4200	3966

DESIGN EQUATIONS

Ultimate Connection Strength

$T_u = 1340$ lb/ft + N tan (33°)

($T_u = 19.56$ kN/m + N tan (33°))

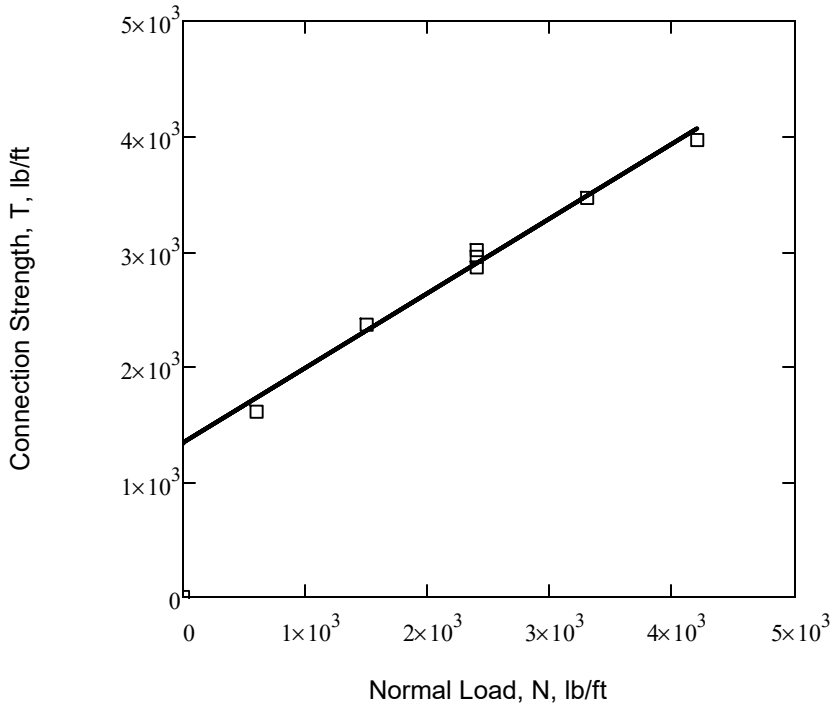
GEOGRID STRENGTH PARAMETERS

Long Term Allowable Design Strength

Sand-Silt-Clay: 4686 lb/ft (68.4 kN/m)
Sand-Gravel: 4686 lb/ft (68.4 kN/m)
Gravel: 4482 lb/ft (65.4 kN/m)

Reduction Factor Creep $RF_{cr} = 1.45$

ALLAN BLOCK & STRATAGRID SGU 120 CONNECTION STRENGTH



Updated - Dec 20, 2021

ALLAN BLOCK GEOGRID DESIGN PARAMETERS

ALLAN BLOCK CORPORATION
Ph. 952-835-5309
Fax. 952-835-0013
allanblock.com

ALLAN BLOCK TYPE: AB Stone, AB Classic, AB Three, AB Rocks
GEOGRID TYPE: Miragrid 2XT
TESTING METHOD: NCMA SRWU-1, ASTM D 6638
TESTING FACILITY: NCMA Testing Lab
TEST DATE: September 27, 2004

CONNECTION STRENGTH TEST DATA

Test Number	Normal Load, lb/ft	Ultimate Connection, lb/ft
1	105.5	299.4
2	427.6	818.1
3	914.8	1619.2
4	916.1	1639
5	916.8	1526.7
6	1369.1	1660.3

DESIGN EQUATIONS

Ultimate Connection Strength

Segment 1: T_{u1} = 125.6 lb/ft + N tan (58.48°)
(T_{u1} = 1.8 kN/m + N tan (58.48°))

Segment 2: T_{u2} = 1623.5 lb/ft + N tan (0°)
(T_{u1} = 23.65 kN/m + N tan (0°))

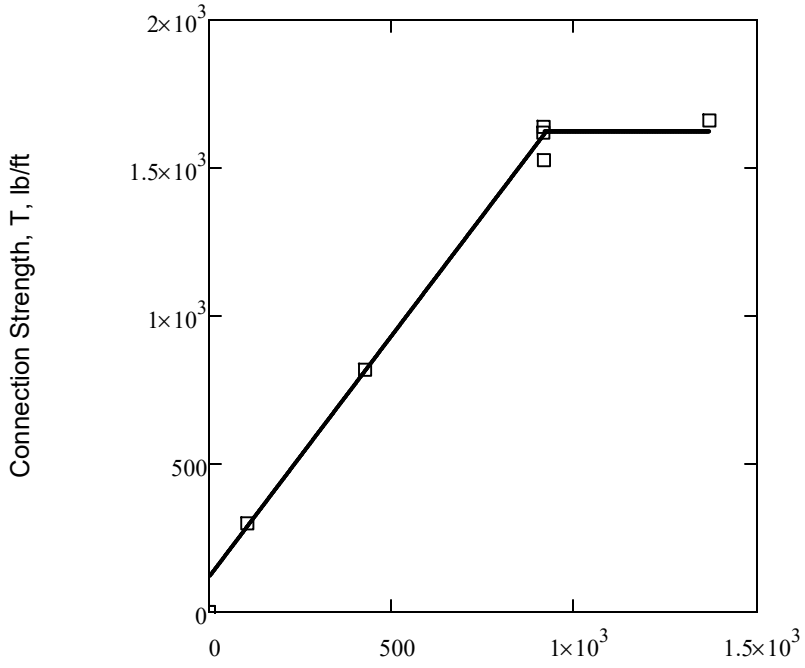
GEOGRID STRENGTH PARAMETERS

Long Term Allowable Design Strength

Sand-Silt-Clay: 1142 lb/ft (16.6 kN/m)
Sand-Gravel: 1090 lb/ft (15.8 kN/m)
Gravel: 960 lb/ft (13.9 kN/m)

Reduction Factor Creep RF_{cr} = 1.45

ALLAN BLOCK & MIRAGRID 2XT CONNECTION



Updated - January 5, 2022

ALLAN BLOCK GEOGRID DESIGN PARAMETERS

ALLAN BLOCK CORPORATION
Ph. 952-835-5309
Fax. 952-835-0013
allanblock.com

ALLAN BLOCK TYPE: AB Classic
GEOGRID TYPE: Miragrid 3XT
TESTING METHOD: NCMA SRWU-1, ASTM D 6638
TESTING FACILITY: Bathurst Clarabut Geotechnical Testing
TEST DATE: April 13, 2010

CONNECTION STRENGTH TEST DATA

Test Number	Normal Load, lb/ft	Ultimate Connection, lb/ft
1	1112	1844
2	369	1252
3	2481	2463
4	1119	1830
5	1855	2229
6	747	1555
7	1112	2002
8	1484	2160

DESIGN EQUATIONS

Ultimate Connection Strength

$T_u = 1193\ lb/ft + N \tan(29^o)$

$(T_u = 17.4\ kN/m + N \tan(29^o))$

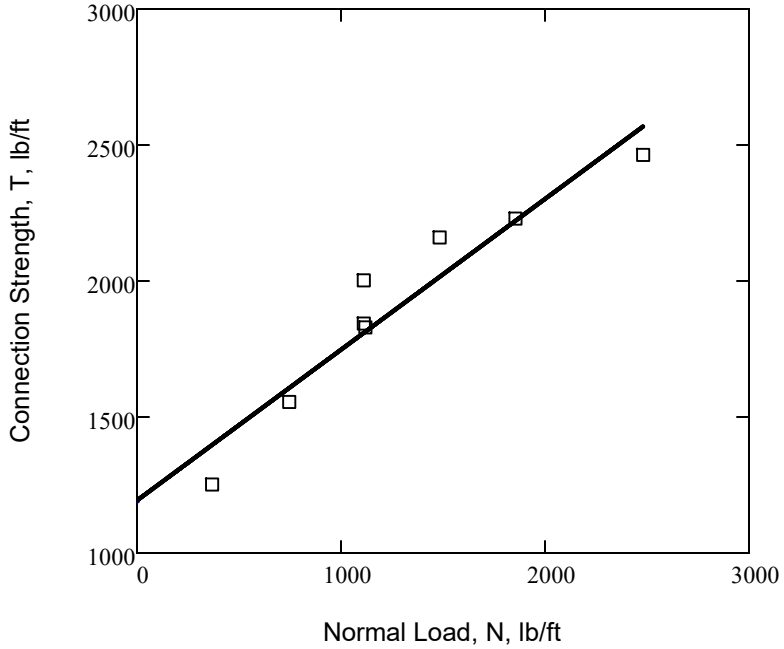
GEOGRID STRENGTH PARAMETERS

Long Term Allowable Design Strength

Sand-Silt-Clay: 1999 lb/ft (29.0 kN/m)
Sand-Gravel: 1908 lb/ft (27.7 kN/m)
Gravel: 1679 lb/ft (24.3 kN/m)

Reduction Factor Creep $RF_{cr} = 1.45$

ALLAN BLOCK CLASSIC & MIRAGRID 3XT CONNECTION



Updated - January 5, 2022

ALLAN BLOCK GEOGRID DESIGN PARAMETERS

ALLAN BLOCK CORPORATION
Ph. 952-835-5309
Fax. 952-835-0013
allanblock.com

ALLAN BLOCK TYPE: AB Classic
GEOGRID TYPE: Miragrid 5XT
TESTING METHOD: NCMA SRWU-1, ASTM D 6638
TESTING FACILITY: Bathurst Clarabut Geotechnical Testing
TEST DATE: April 13, 2010

CONNECTION STRENGTH TEST DATA

Test Number	Normal Load, lb/ft	Ultimate Connection, lb/ft
1	1862	2497
2	617	1472
3	1236	2009
4	1855	2319
5	2467	2642
6	3087	3103
7	1855	2394
8	3713	3227

DESIGN EQUATIONS

Ultimate Connection Strength

$T_u = 1287$ lb/ft + N tan (29°)

($T_u = 18.7$ kN/m + N tan (29°))

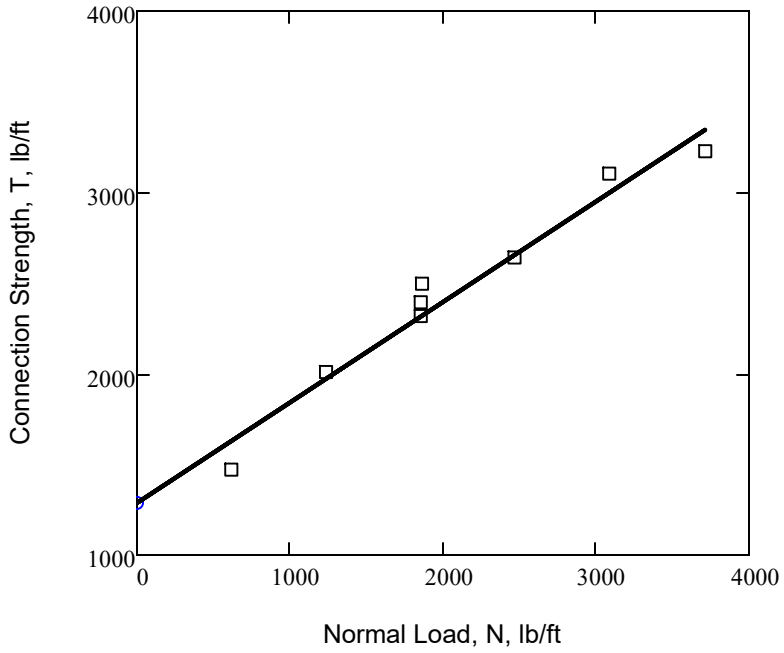
GEOGRID STRENGTH PARAMETERS

Long Term Allowable Design Strength

Sand-Silt-Clay: 2684 lb/ft (39.0 kN/m)
Sand-Gravel: 2562 lb/ft (37.2 kN/m)
Gravel: 2255 lb/ft (32.7 kN/m)

Reduction Factor Creep $RF_{cr} = 1.45$

ALLAN BLOCK CLASSIC & MIRAGRID 5XT CONNECTION



Updated - January 5, 2022

ALLAN BLOCK GEOGRID DESIGN PARAMETERS

ALLAN BLOCK CORPORATION
Ph. 952-835-5309
Fax. 952-835-0013
allanblock.com

ALLAN BLOCK TYPE: AB Stone, AB Classic, AB Three, AB Rocks
GEOGRID TYPE: Miragrid 7XT
TESTING METHOD: NCMA SRWU-1, ASTM D 6638
TESTING FACILITY: NCMA Testing Lab
TEST DATE: June 25, 2003

CONNECTION STRENGTH TEST DATA

Test Number	Normal Load, lb/ft	Ultimate Connection, lb/ft
1	499.8	1220.6
2	1235.7	1841.8
3	2099.3	1904.3
4	2099.3	2048.5
5	2099.3	2125.4
6	3080.9	2570.2

DESIGN EQUATIONS

Ultimate Connection Strength

$T_u = 1065.4 \text{ lb/ft} + N \tan(25.62^o)$

$(T_{u2} = 15.52 \text{ kN/m} + N \tan(25.62^o))$

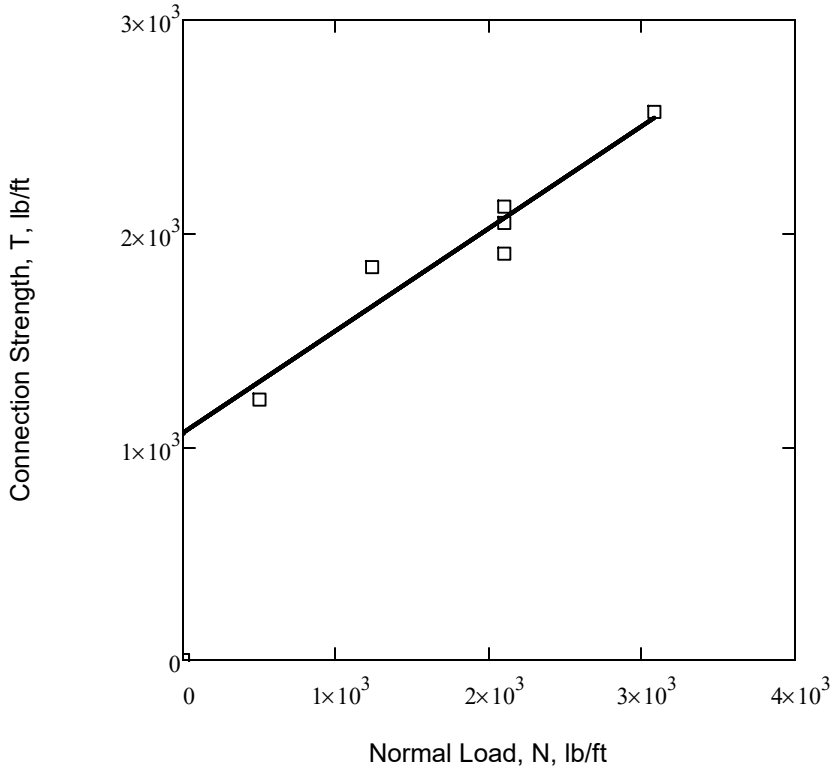
GEOGRID STRENGTH PARAMETERS

Long Term Allowable Design Strength

Sand-Silt-Clay: 3370 lb/ft (49.0 kN/m)
Sand-Gravel: 3217 lb/ft (46.7 kN/m)
Gravel: 2831 lb/ft (41.1 kN/m)

Reduction Factor Creep $RF_{cr} = 1.45$

ALLAN BLOCK & MIRAGRID 7XT CONNECTION



Updated - January 5, 2022

ALLAN BLOCK GEOGRID DESIGN PARAMETERS

ALLAN BLOCK CORPORATION
Ph. 952-835-5309
Fax. 952-835-0013
allanblock.com

ALLAN BLOCK TYPE: AB Stone, AB Classic, AB Three, AB Rocks
GEOGRID TYPE: Miragrid 8XT
TESTING FACILITY: Bathurst Clarabut Geotechnical Testing
TEST DATE: April 25, 2000

CONNECTION STRENGTH TEST DATA

Test Number	Normal Load, lb/ft	Ultimate Connection, lb/ft	Service Connection, lb/ft
1	358	1245	1165
2	709	1734	1622
3	1170	1975	1716
4	1713	2456	2096
5	1211	2153	1770
6	1156	2112	1668
7	2277	2924	2469
8	2910	2821	2451

DESIGN EQUATIONS

Ultimate Connection Strength

Segment 1: T_{u1} = 1063 lb/ft + N tan (40°)
(T_{u1} = 15.51 kN/m + N tan (40°))

Segment 2: T_{u2} = 2872 lb/ft
(T_{u2} = 41.90 kN/m)

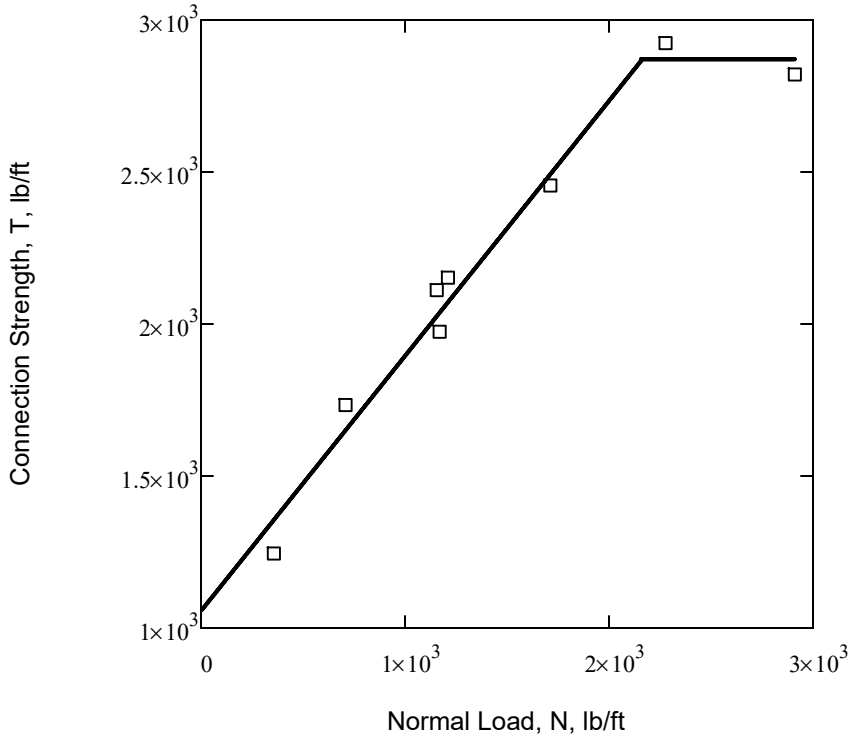
GEOGRID STRENGTH PARAMETERS

Long Term Allowable Design Strength

Sand-Silt-Clay: 4226 lb/ft (61.6 kN/m)
Sand-Gravel: 4034 lb/ft (58.8 kN/m)
Gravel: 3550 lb/ft (51.7 kN/m)

Reduction Factor Creep RF_{cr} = 1.45

ALLAN BLOCK & MIRAGRID 8XT CONNECTION



Updated - January 5, 2022

ALLAN BLOCK GEOGRID DESIGN PARAMETERS

ALLAN BLOCK CORPORATION
5300 Edina Industrial Blvd.
Suite 100
Edina, MN 55439
Ph. 952-835-5309
Fax. 952-835-0013
allanblock.com

ALLAN BLOCK TYPE: AB Stone, AB Classic, AB Three, AB Rocks
GEOGRID TYPE: Miragrid 10XT
TESTING METHOD: ASTM D 6638
TESTING FACILITY: Bathurst Clarabut Geotechnical Testing
TEST DATE: April 25, 2000

CONNECTION STRENGTH TEST DATA

Test Number	Normal Load, lb/ft	Ultimate Connection, lb/ft
1	406	1032
2	716	1465
3	1163	2023
4	1720	2105
5	2291	2374
6	2869	2683
7	1734	2064
8	1851	2140

DESIGN EQUATIONS

Ultimate Connection Strength

Segment 1: $T_{u1} = 513 \text{ lb/ft} + N \tan(52^o)$
($T_{u1} = 7.48 \text{ kN/m} + N \tan(52^o)$)

Segment 2: $T_{u2} = 1426 \text{ lb/ft} + N \tan(23^o)$
($T_{u2} = 20.81 \text{ kN/m} + N \tan(23^o)$)

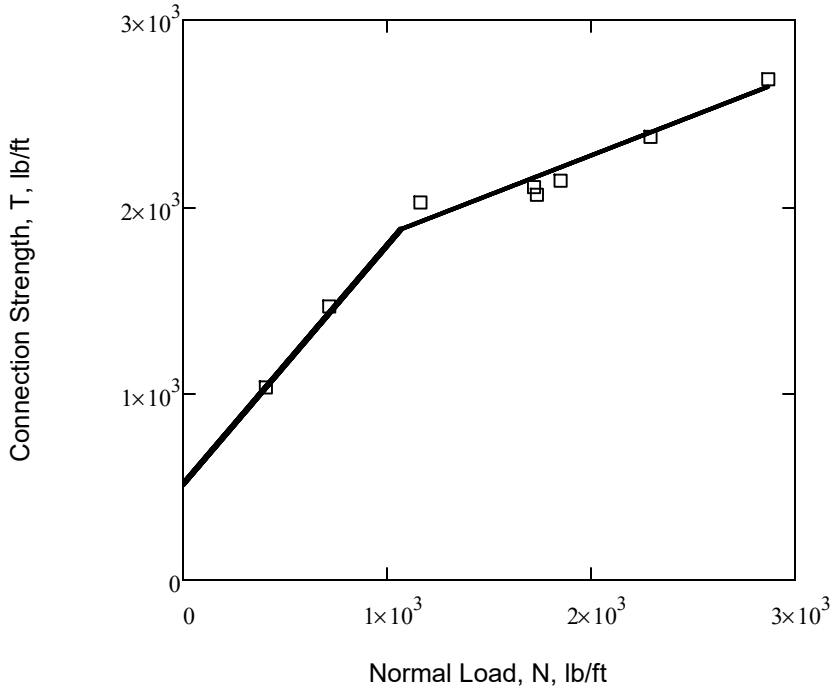
GEOGRID STRENGTH PARAMETERS

Long Term Allowable Design Strength

Sand-Silt-Clay: 5426 lb/ft (78.9 kN/m)
Sand-Gravel: 5179 lb/ft (75.3 kN/m)
Gravel: 4558 lb/ft (66.2 kN/m)

Reduction Factor Creep $RF_{cr} = 1.45$

ALLAN BLOCK & MIRAGRID 10XT CONNECTION



Updated - January 5, 2022

ALLAN BLOCK GEOGRID DESIGN PARAMETERS

ALLAN BLOCK CORPORATION
Ph. 952-835-5309
Fax. 952-835-0013
allanblock.com

ALLAN BLOCK TYPE: AB Stones, AB Classic
GEOGRID TYPE: Huesker Fortrac 35T
TESTING METHOD: ASTM D 6638
TESTING FACILITY: National Concrete Masonry Association
TEST DATE: October 20, 2015

CONNECTION STRENGTH TEST DATA

Test Number	Normal Load, lb/ft	Ultimate Connection, lb/ft
1	613	870
2	2201	1320
3	1465	1163
4	2201	1160
5	3072	1260
6	2187	1133
7	3904	1303

DESIGN EQUATIONS

Ultimate Connection Strength

$T_u = 911 \text{ lb/ft} + N \tan(6.8^o)$

$(T_u = 13.30 \text{ kN/m} + N \tan(6.8^o))$

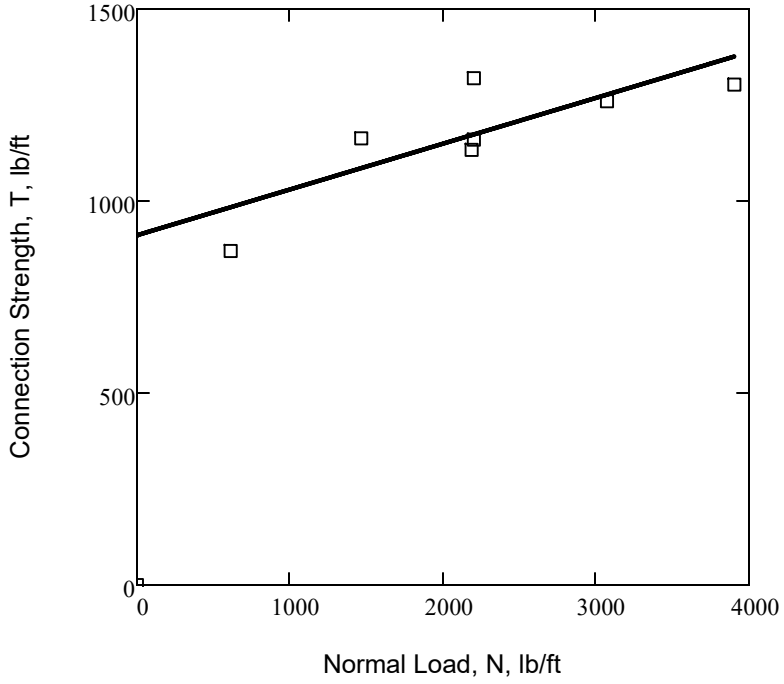
GEOGRID STRENGTH PARAMETERS

Long Term Allowable Design Strength

Sand-Silt-Clay: 1197 lb/ft (17.4 kN/m)
Sand-Gravel: 1175 lb/ft (17.0 kN/m)
Gravel: 1097 lb/ft (15.9 kN/m)

Reduction Factor Creep $RF_{cr} = 1.522$

ALLAN BLOCK STONES & FORTRAC 35/20-20T CONNECTION STRENGTH



Updated - January 5, 2022

ALLAN BLOCK GEOGRID DESIGN PARAMETERS

ALLAN BLOCK CORPORATION
Ph. 952-835-5309
Fax. 952-835-0013
allanblock.com

ALLAN BLOCK TYPE: AB Stones
GEOGRID TYPE: Huesker Fortrac 55T
TESTING METHOD: ASTM D 6638
TESTING FACILITY: National Concrete Masonry Association
TEST DATE: October 20, 2015

CONNECTION STRENGTH TEST DATA

Test Number	Normal Load, lb/ft	Ultimate Connection, lb/ft
1	615	1030
2	2197	1717
3	1474	1563
4	2206	1820
5	3063	1867
6	2199	1723
7	3886	1977

DESIGN EQUATIONS

Ultimate Connection Strength

$T_u = 1070$ lb/ft + N tan (15.1°)

($T_u = 15.62$ kN/m + N tan (15.1°))

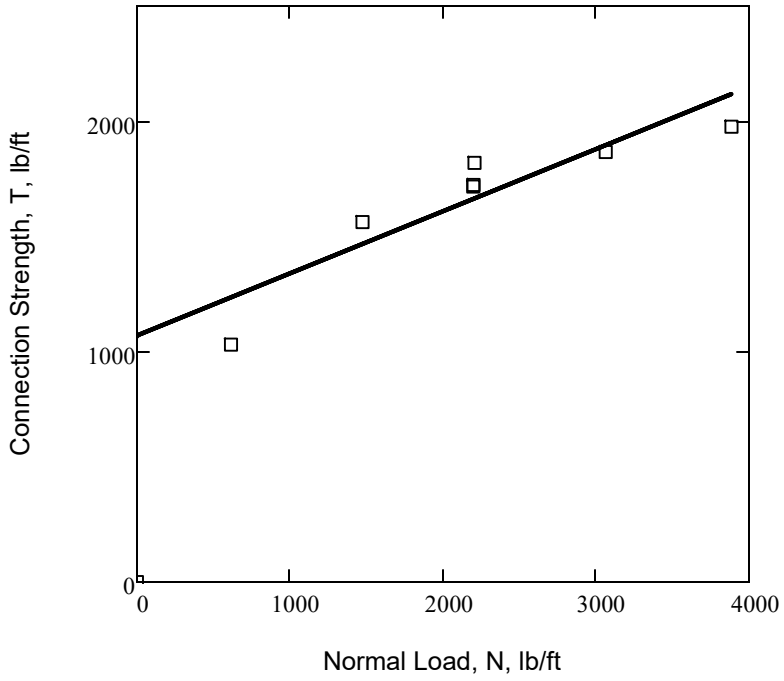
GEOGRID STRENGTH PARAMETERS

Long Term Allowable Design Strength

Sand-Silt-Clay: 1898 lb/ft (27.6 kN/m)
Sand-Gravel: 1864 lb/ft (27.1 kN/m)
Gravel: 1815 lb/ft (26.3 kN/m)

Reduction Factor Creep $RF_{cr} = 1.522$

ALLAN BLOCK STONES & FORTRAC 55/30-20T CONNECTION STRENGTH



Updated - January 5, 2022

ALLAN BLOCK GEOGRID DESIGN PARAMETERS

ALLAN BLOCK CORPORATION
Ph. 952-835-5309
Fax. 952-835-0013
allanblock.com

ALLAN BLOCK TYPE: AB Stones, AB Classic
GEOGRID TYPE: Huesker Fortrac 80T
TESTING METHOD: ASTM D 6638
TESTING FACILITY: National Concrete Masonry Association
TEST DATE: October 20, 2015

CONNECTION STRENGTH TEST DATA

Test Number	Normal Load, lb/ft	Ultimate Connection, lb/ft
1	617	1233
2	2190	1843
3	1474	1980
4	2210	2230
5	3074	2117
6	2203	2033
7	3927	2527

DESIGN EQUATIONS

Ultimate Connection Strength

$T_u = 1250.7$ lb/ft + N tan (18.3°)

($T_u = 18.25$ kN/m + N tan (18.3°))

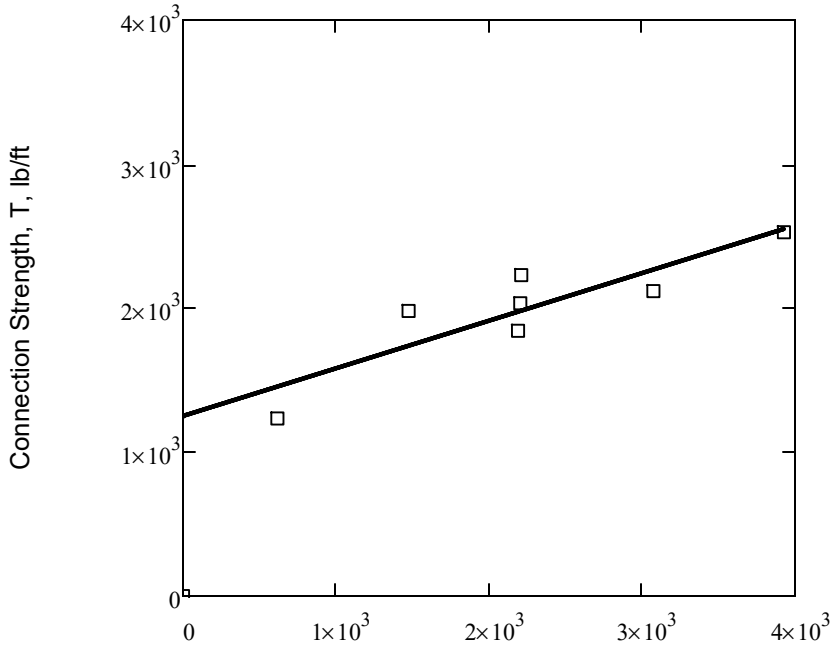
GEOGRID STRENGTH PARAMETERS

Long Term Allowable Design Strength

Sand-Silt-Clay: 2979 lb/ft (43.3 kN/m)
Sand-Gravel: 2950 lb/ft (42.8 kN/m)
Gravel: 2813 lb/ft (40.9 kN/m)

Reduction Factor Creep $RF_{cr} = 1.522$

ALLAN BLOCK STONES & FORTRAC 80/30-20T CONNECTION STRENGTH



Updated - January 5, 2022