NOVUM WALL® RETAINING BLOCK WITH GEOGRID INCLUSION INTERFACE SHEAR DESIGN PARAMETERS

Test Method: ASTM D6916 & NCMA SRWU-2

Tested by: Aster Brands | 02/19 - 04/25, 2024

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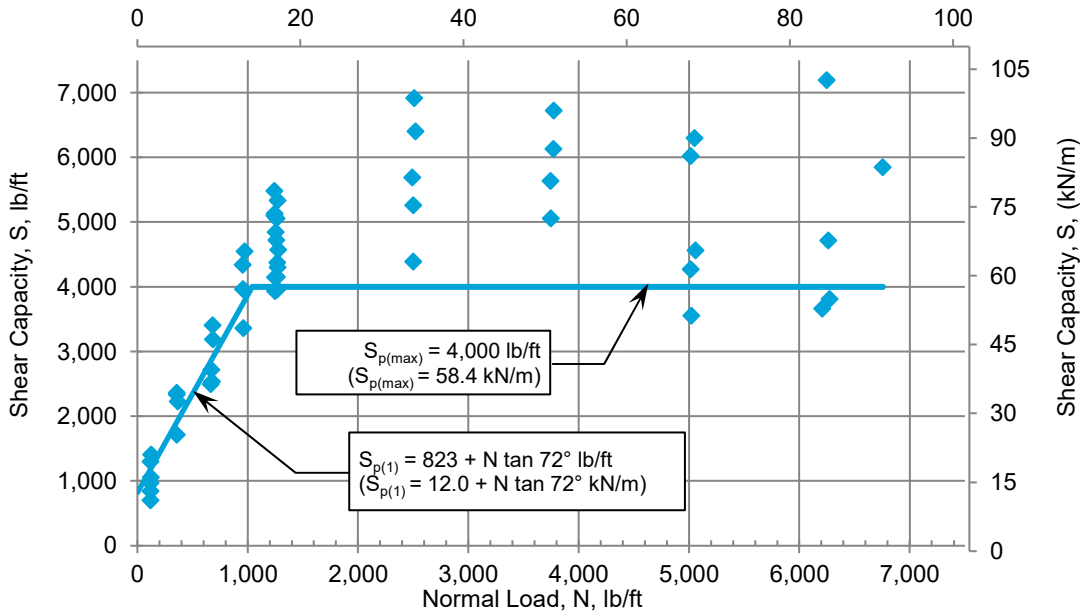
INTERFACE SHEAR CAPACITY



Peak Shear Envelope:[a]

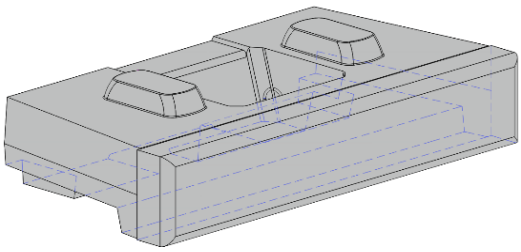
S_p = 823 lb/ft + N tan 72° ≤ 4,000 lb/ft

(S_p = 12.0 kN/m + N tan 72° ≤ 58.4 kN/m)

Inflection Point:

N = 1040 lb/ft (15.2 kN/m) **S = 4,000 lb/ft (58.4 kN/m)**

NW-R NOVUM WALL RETAINING BLOCK WITH GEOGRID INCLUSION



(a) The equations for peak shear envelope represent the slope of the trend line of the raw data. Because most test blocks had compressive strengths values at the time of testing above the minimum specified 28-day value for Novum WallTM blocks of 4,000 psi (27.6 MPa) and the data points at larger normal loads are quite variable, a maximum shear capacity of 4,000 lb/ft (58.4 kN/m) was selected. No further adjustments have been made. Appropriate factors of safety for design should be added.

(b) The average 28-day compressive strength of concrete test blocks ranged from 2,840 psi (19.6 MPa) to 4,520 psi (31.2 MPa), with an average of 3,971 psi (27.4 MPa). The average compressive strength at testing date ranged from 3,510 psi (24.2 MPa) to 5,980 psi (41.2 MPa), with an average of 5,017 psi (34.6 MPa). The data reported represents the actual laboratory test results.

INTERFACE SHEAR DATA[b]

Test No.	Normal Load		Peak Shear		Observed Failure	Test No.	Normal Load		Peak Shear		Observed Failure
	lb/ft	kN/m	lb/ft	kN/m			lb/ft	kN/m	lb/ft	kN/m	
Mirafi 3XT											
1	122	1.8	1,063	15.5	Crushed Groove	9	684	10.0	3,191	46.6	Broken Knobs
2	357	5.2	2,341	34.2	Crushed Groove	10	1,261	18.4	5,060	73.8	Broken Knob
3	1,259	18.4	4,724	68.9	Broken Knob	11	2,509	36.6	6,920	101.0	Broken Blocks
4	118	1.7	973	14.2	Crushed Groove	12	3,748	54.7	5,059	73.8	Broken Blocks
5	681	9.9	3,410	49.8	Broken Knobs	13	5,014	73.2	6,023	87.9	Broken Blocks
6	1,241	18.1	5,485	80.0	Broken Knobs	14	6,208	90.6	3,669	53.5	Broken Blocks
7	126	1.8	1,413	20.6	Crushed Groove	15	6,274	91.6	3,817	55.7	Broken Blocks
8	973	14.2	4,554	66.5	Broken Knobs						

INTERFACE SHEAR DATA[(b)]											
Test No.	Normal Load		Peak Shear		Observed Failure	Test No.	Normal Load		Peak Shear		Observed Failure
	lb/ft	kN/m	lb/ft	kN/m			lb/ft	kN/m	lb/ft	kN/m	
Mirafi 5XT											
1	120	1.8	849	12.4	Crushed Groove	7	1,245	18.2	5,136	75.0	Broken Knobs
2	665	9.7	2,499	36.5	Crushed Groove	8	2,492	36.4	5,694	83.1	Sheared Knob
3	1,267	18.5	4,381	63.9	Crushed Groove	9	3,773	55.1	6,729	98.2	Broken Blocks
4	365	5.3	2,233	32.6	Crushed Groove	10	5,060	73.8	4,569	66.7	Broken Blocks
5	954	13.9	4,343	63.4	Broken Knobs	11	6,757	98.6	5,851	85.4	Broken Blocks
6	1,253	18.3	4,847	70.7	Broken Knobs						
Mirafi 8XT											
1	118	1.7	705	10.3	Crushed Groove	8	2,502	36.5	4,393	64.1	Broken Blocks
2	676	9.9	2,541	37.1	Broken Knob	9	3,770	55.0	6,132	89.5	Broken Blocks
3	1,270	18.5	4,304	62.8	Crushed Groove	10	5,022	73.3	3,559	51.9	Broken Blocks
4	356	5.2	2,364	34.5	Crushed Groove	11	6,262	91.4	4,721	68.9	Broken Blocks
5	961	14.0	3,363	49.1	Broken Knobs	12	1,247	18.2	4,152	60.6	Broken Knobs
6	1,269	18.5	3,961	57.8	Broken Knob	13	2,501	36.5	5,264	76.8	Broken Blocks
7	1,241	18.1	5,104	74.5	Sheared Knob	14	5,051	73.7	6,300	91.9	Broken Blocks
Mirafi 10XT											
1	120	1.8	1,305	19.0	Crushed Groove	7	2,521	36.8	6,408	93.5	Broken Blocks
2	671	9.8	2,722	39.7	Crushed Groove	8	1,270	18.5	5,338	77.9	Broken Blocks
3	1,248	18.2	3,939	57.5	Broken Knobs	9	357	5.2	1,718	25.1	Crushed Groove
4	6,247	91.2	7,195	105.0	Broken Blocks	10	1,266	18.5	4,155	60.6	Broken Knobs
5	5,015	73.2	4,276	62.4	Broken Blocks	11	958	14.0	3,970	57.9	Broken Knobs
6	3,745	54.7	5,638	82.3	Broken Blocks	12	1,277	18.6	4,577	66.8	Broken Knob

The information contained in this report has been compiled by Aster Brands as a recommendation of peak interface shear capacity with geogrid inclusion. It is accurate to the best of our knowledge as of the date of its issue. However, final determination of the suitability of any design information and the appropriateness of this data for a given design purpose is the sole responsibility of the user. No warranty of performance is expressed or implied by the publishing of the foregoing