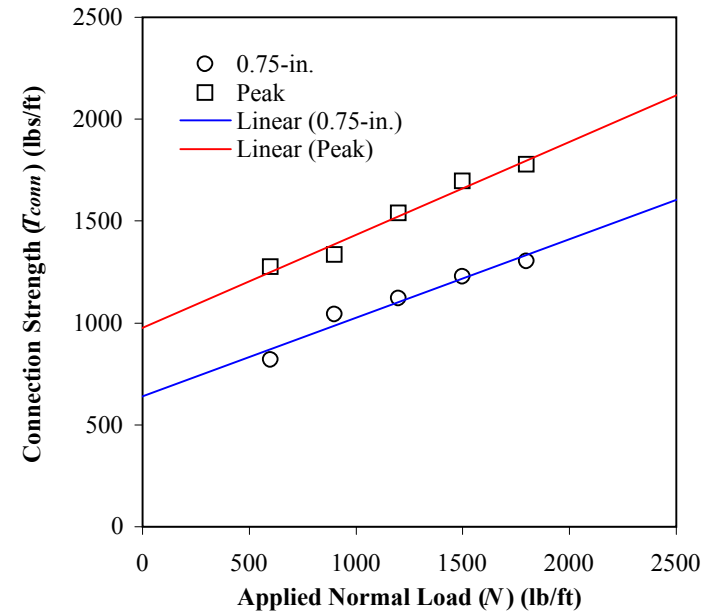
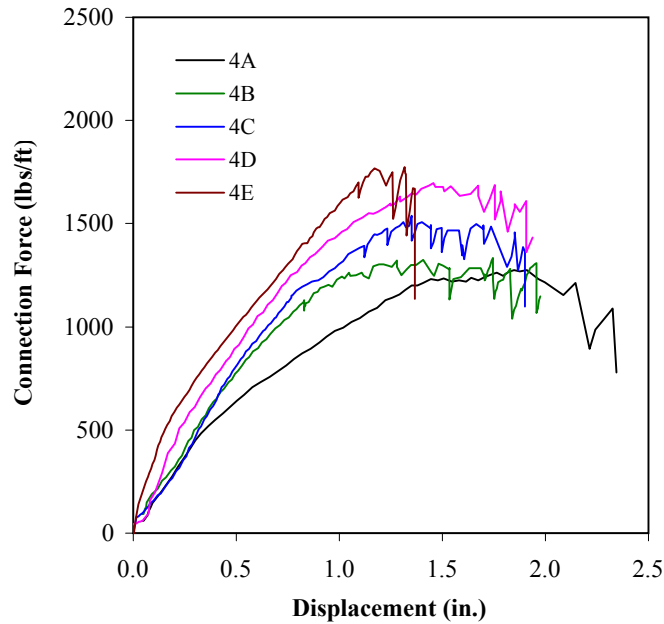


**GEOSTAR TECHNOLOGIES, LLC**  
**CONNECTION STRENGTH TESTING (ASTM D 6638)**

TEST SERIES NO. 4: Optima HP200 geogrid in machine direction between two courses of GeoStone Landscape blocks (4" Thick) with compacted AASHTO #57 stone within block apertures and space between blocks



Test No.	Geogrid Specimen Nominal Width (in.)	Test Normal Stress (psi)	Equivalent Normal Load (lb/ft)	Approx. No. of Blocks	Approx. Wall Height (ft)	0.75-in. Strength (lb/ft)	Peak Strength (lb/ft)	Connection Strength Equations
								$(T_{conn})$
4A	32.0	4.2	600	15	5.0	819	1275	$T_{0.75-in.} = 640 (N) \tan ( 21^\circ )$ $T_{peak} = 975 (N) \tan ( 25^\circ )$
4B	32.0	6.3	900	23	7.5	1044	1333	
4C	32.0	8.3	1200	30	10.0	1120	1538	
4D	32.0	10.4	1500	38	12.5	1229	1696	
4E	32.0	12.5	1800	45	15.0	1305	1779	

**NOTES:**  
 Dimensions of Block: 18 in. wide by 12 in. long and 4 in. high.  
 Weight of Full-Size Block: 36 lbs  
 Unit Weight of Facing (Block and Gravel): 120 pcf  
 Failure Mode: Abrasion and rupture of geogrid ribs in each test.

DATE REPORTED: 4/23/2009

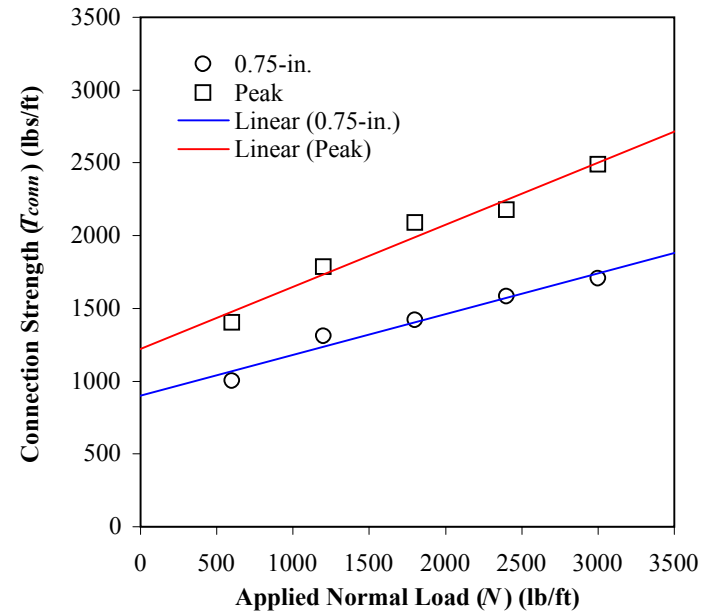
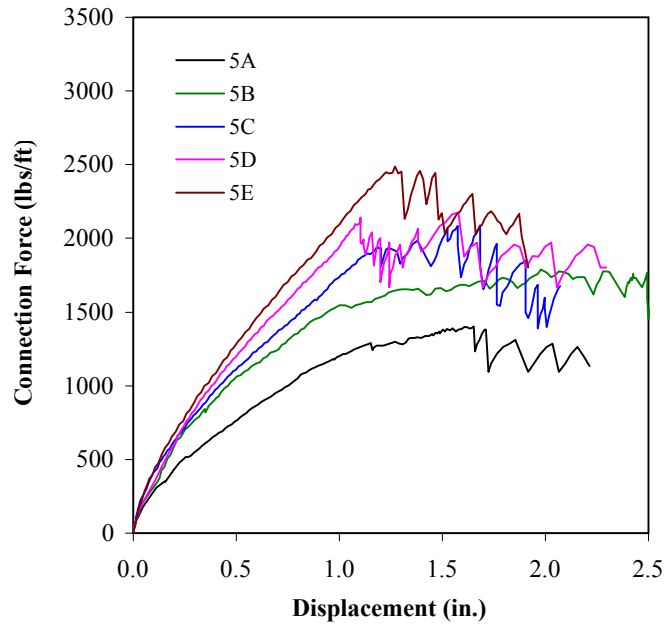


**SGI TESTING SERVICES, LLC**

FIGURE NO. C-4  
 PROJECT NO. SGI9011  
 DOCUMENT NO.  
 FILE NO.

**GEOSTAR TECHNOLOGIES, LLC**  
**CONNECTION STRENGTH TESTING (ASTM D 6638)**

TEST SERIES NO. 5: Optima HP300 geogrid in machine direction between two courses of GeoStone Landscape blocks (4" Thick) with compacted AASHTO #57 stone within block apertures and space between blocks



Test No.	Geogrid Specimen Nominal Width (in.)	Test Normal Stress (psi)	Equivalent Normal Load (lb/ft)	Approx. No. of Blocks	Approx. Wall Height (ft)	0.75-in. Strength (lb/ft)	Peak Strength (lb/ft)	Connection Strength Equations $(T_{conn})$
5A	32.0	4.2	600	15	5.0	1002	1404	$T_{0.75-in.} = 900 (N) \tan ( 16 ^\circ )$ $T_{peak} = 1220 (N) \tan ( 23 ^\circ )$
5B	32.0	8.3	1200	30	10.0	1310	1787	
5C	32.0	12.5	1800	45	15.0	1420	2088	
5D	32.0	16.7	2400	60	20.0	1583	2177	
5E	32.0	20.8	3000	75	25.0	1706	2490	

**NOTES:**

Dimensions of Block: 18 in. wide by 12 in. long and 4 in. high.  
 Weight of Full-Size Block: 36 lbs  
 Unit Weight of Facing (Block and Gravel): 120 pcf  
 Failure Mode: Abrasion and rupture of geogrid ribs in each test.

DATE REPORTED: 4/23/2009

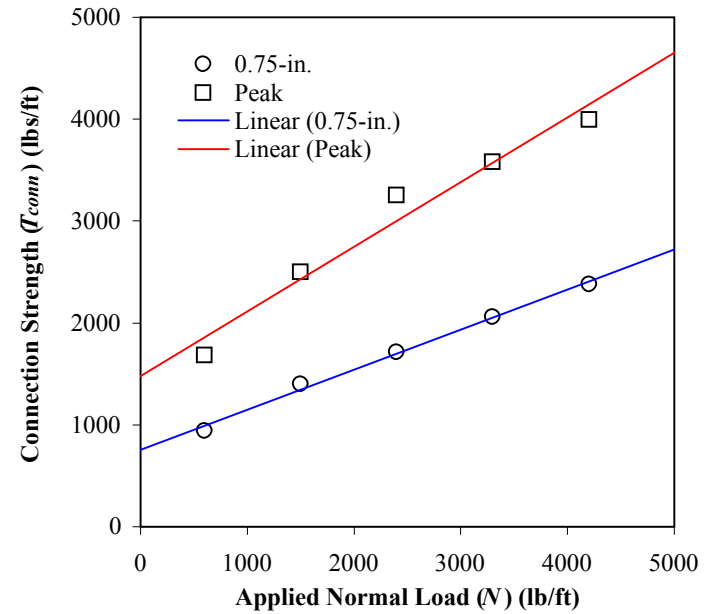
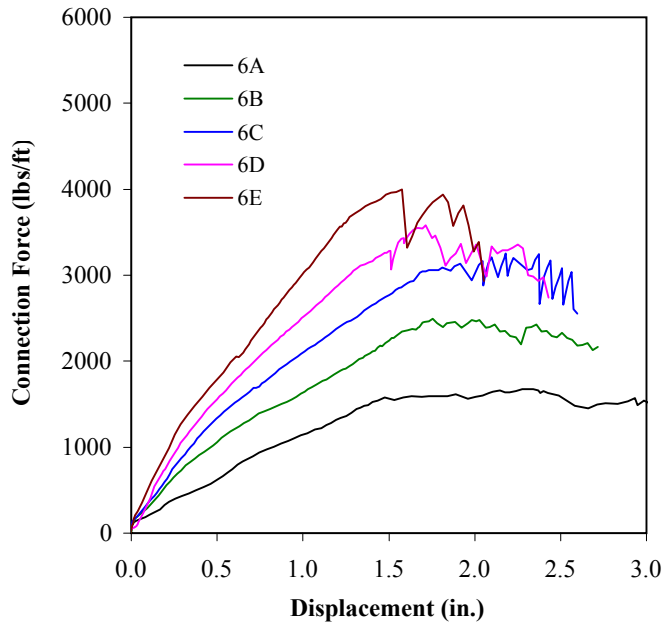


**SGI TESTING SERVICES, LLC**

FIGURE NO. C-5  
 PROJECT NO. SGI9011  
 DOCUMENT NO.  
 FILE NO.

**GEOSTAR TECHNOLOGIES, LLC**  
**CONNECTION STRENGTH TESTING (ASTM D 6638)**

TEST SERIES NO. 6: Optima HP500 geogrid in machine direction between two courses of GeoStone Landscape blocks (4" Thick) with compacted AASHTO #57 stone within block apertures and space between blocks



Test No.	Geogrid Specimen Nominal Width (in.)	Test Normal Stress (psi)	Equivalent Normal Load (lb/ft)	Approx. No. of Blocks	Approx. Wall Height (ft)	0.75-in. Strength (lb/ft)	Peak Strength (lb/ft)	Connection Strength Equations
								$(T_{conn})$
6A	32.0	4.2	600	15	5.0	943	1682	$T_{0.75-in.} = 755 (N) \tan ( 21^\circ )$ $T_{peak} = 1480 (N) \tan ( 32^\circ )$
6B	32.0	10.4	1500	38	12.5	1398	2502	
6C	32.0	16.7	2400	60	20.0	1716	3252	
6D	32.0	22.9	3300	83	27.5	2063	3583	
6E	32.0	29.2	4200	105	35.0	2382	3997	

**NOTES:**

Dimensions of Block: 18 in. wide by 12 in. long and 4 in. high.  
 Weight of Full-Size Block: 36 lbs  
 Unit Weight of Facing (Block and Gravel): 120 pcf  
 Failure Mode: Abrasion and rupture of geogrid ribs in each test.

DATE REPORTED: 4/23/2009



**SGI TESTING SERVICES, LLC**

FIGURE NO. C-6  
 PROJECT NO. SGI9011  
 DOCUMENT NO.  
 FILE NO.