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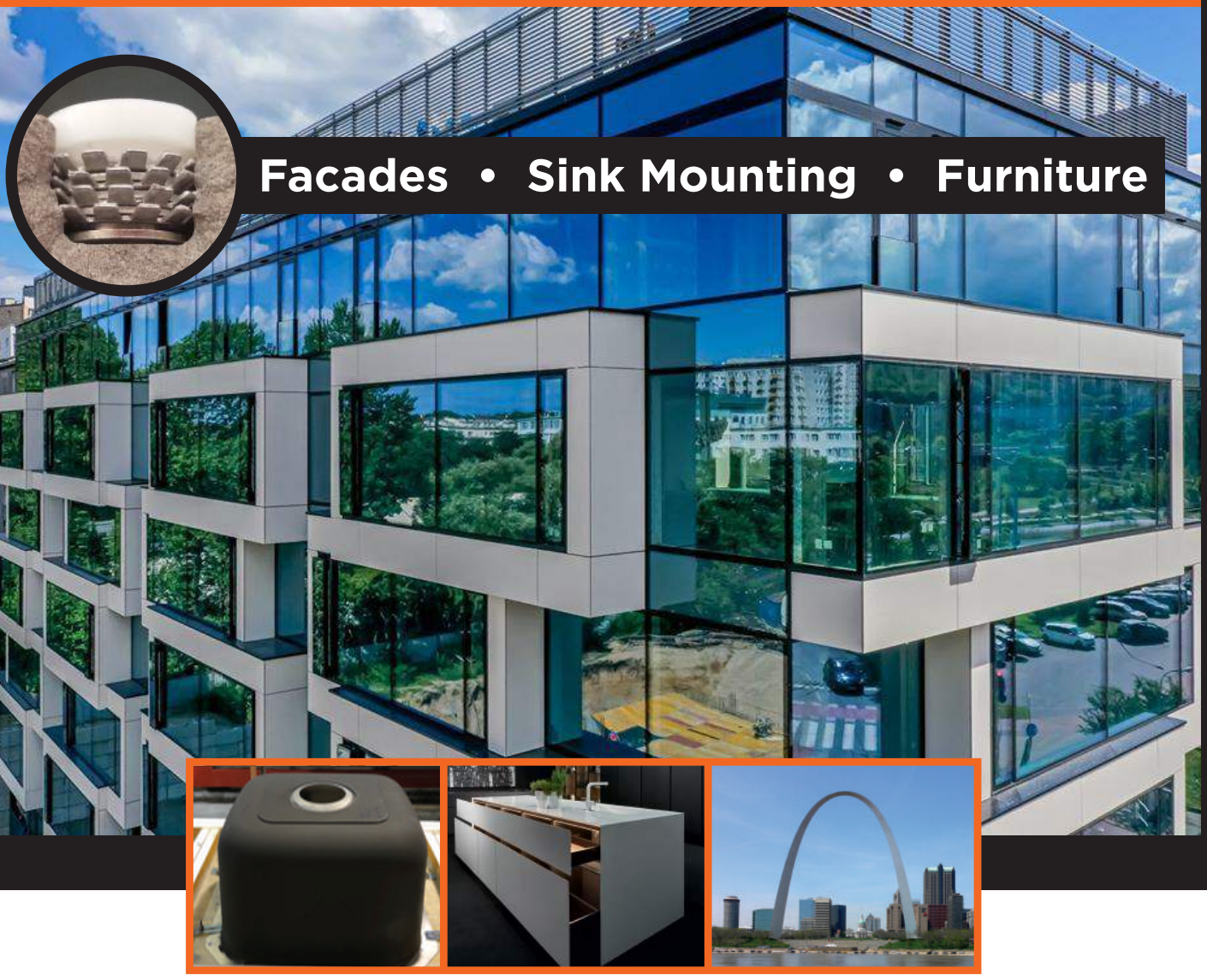
KEEP-NUT™
Independent ASTM Testing
from the
Natural Stone Institute Laboratory



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Laboratory Test Report

Member # 4729
Contact # 8249

Client: Specialinsert srl/ Chemical Concepts
Trade Name of Material: Black Absolute
Finish: Polished
Country of Origin: none specified.
Test Procedure: C1354 Strength of Individual Stone Anchorages in Dimension Stone
Rift Orientation: none specified.
Preconditioning: none, room temperature
Load: Tension

Trade Name: **Black Absolute - 30mm - Granite - Tension** **Anchor:** H8 Keep-Nut®

Specimen Number	Load Direction	Panel Thickness (mm)	Hole Depth (mm)	Hole Dia. (mm)	Load @ Failure (lbs-F)	Load @ Failure (kN)	Rate of Crosshead Travel	Mode of Failure
H8-BA-T-1	Tension	30.55	8.72	11.82	1,165	5.18	0.075 to 0.085 in./min. (1.9 to 2.2 mm/min)	Overload 1K cell; switched to 10K, then break detect.
H8-BA-T-2	Tension	30.51	8.97	11.93	1,491	6.63		Anchor pulled apart leaving crown of anchor in bottom of hole.
H8-BA-T-3	Tension	30.37	8.68	11.87	1,606	7.15		Keep-Nut partially pulled from specimen.
H8-BA-T-4	Tension	30.76	9.04	11.97	1,392	6.19		Keep-Nut pulled apart leaving crown of Keep-Nut in bottom of hole.
H8-BA-T-5	Tension	30.55	8.97	11.95	1,480	6.59		Center of Keep-Nut pulled out.
				Average:	**1,427**	**6.35**		
				Standard Deviation:	164.9	0.73		
				Coefficient of Variation:	11.6%	11.6%		

Trade Name: **Black Absolute - 30mm - Granite - Tension** **Anchor:** H15 Keep-Nut®

Specimen Number	Load Direction	Panel Thickness (mm)	Hole Depth (mm)	Hole Dia. (mm)	Load @ Failure (lbs-F)	Load @ Failure (kN)	Rate of Crosshead Travel	Mode of Failure
H15-BA-T-1	Tension	30.57	15.11	12.01	1,909	8.50	0.075 to 0.085 in./min. (1.9 to 2.2 mm/min)	Center of Keep-Nut pulled out.
H15-BA-T-2	Tension	30.54	15.01	11.99	1,646	7.32		Keep-Nut pulled apart leaving crown of Keep-Nut in bottom of hole.
H15-BA-T-3	Tension	30.12	15.32	12.04	1,658	7.38		
H15-BA-T-4	Tension	30.57	15.01	12.03	1,606	7.15		
H15-BA-T-5	Tension	30.59	15.16	12.04	1,891	8.41		
				Average:	**1,742**	**7.75**		
				Standard Deviation:	145.7	0.65		
				Coefficient of Variation:	8.4%	8.4%		

Tests performed by: **R. Lawson**
Date: **September 23, 2020**

These tests were performed on a Applied Testing Systems Universal Testing Machine Model 910. Loads were measured on Interface Model 1020AF-12.5K-B Load Cell, Serial No. 561415A, Last Date of Calibration: May 27, 2020, traceable to the National Institute of Standards Technology (NIST).

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Laboratory Test Report

Member # 4729
Contact # 8249

Client: Specialinsert srl/ Chemical Concepts
Trade Name of Material: Black Absolute
Finish: Polished
Country of Origin: none specified.
Test Procedure: C1354 Strength of Individual Stone Anchorages in Dimension Stone
Rift Orientation: none specified.
Preconditioning: none, room temperature
Load: Shear

Trade Name:	**Black Absolute - 30mm - Granite - Shear**					**Anchor:** H8 Keep-Nut®		
Specimen Number	**Load Direction**	**Panel Thickness (mm)**	**Hole Depth (mm)**	**Hole Dia. (mm)**	**Load @ Failure (lbs-F)**	**Load @ Failure (kN)**	**Rate of Crosshead Travel**	**Mode of Failure**
H8-BA-S-1	Shear	30.69	8.67	12.04	2,933	13.05	0.075 to 0.085 in./min. (1.9 to 2.2 mm/min)	Keep-Nut separated. Anchor shaft bent.
H8-BA-S-2	Shear	30.38	8.53	12.07	2,788	12.41		
H8-BA-S-3	Shear	30.36	8.50	12.05	2,694	11.99		
H8-BA-S-4	Shear	30.66	8.72	12.04	2,887	12.85		
H8-BA-S-5	Shear	30.37	8.51	12.01	2,905	12.93		
				Average:	**2,841**	**12.64**		
				Standard Deviation:	98.9	0.44		
				Coefficient of Variation:	3.5%	3.5%		

Trade Name:	**Black Absolute - 30mm - Granite - Shear**					**Anchor:** H15 Keep-Nut®		
Specimen Number	**Load Direction**	**Panel Thickness (mm)**	**Hole Depth (mm)**	**Hole Dia. (mm)**	**Load @ Failure (lbs-F)**	**Load @ Failure (kN)**	**Rate of Crosshead Travel**	**Mode of Failure**
H15-BA-S-1	Shear	30.17	15.38	12.01	3,554	15.82	0.075 to 0.085 in./min. (1.9 to 2.2 mm/min)	Shear failure of threaded anchor shaft.
H15-BA-S-2	Shear	30.14	15.08	12.05	3,453	15.37		
H15-BA-S-3	Shear	30.07	15.01	12.04	3,335	14.84		
H15-BA-S-4	Shear	30.68	15.46	12.07	3,350	14.91		
H15-BA-S-5	Shear	30.21	15.26	12.08	2,920	12.99		
				Average:	**3,322**	**14.78**		
				Standard Deviation:	241.6	1.08		
				Coefficient of Variation:	7.3%	7.3%		

Tests performed by: **R. Lawson**
Date: **September 25, 2020**

These tests were performed on a Applied Testing Systems Universal Testing Machine Model 910. Loads were measured on Interface Model 1020AF-12.5K-B Load Cell, Serial No. 561415A, Last Date of Calibration: May 27, 2020, traceable to the National Institute of Standards Technology (NIST).

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Laboratory Test Report

Member # 4729
Contact # 8249

Client: Specialinsert srl/ Chemical Concepts
Trade Name of Material: Caledonia
Finish: Polished
Country of Origin: Canada
Test Procedure: C1354 Strength of Individual Stone Anchorages in Dimension Stone
Rift Orientation: none specified
Preconditioning: none, room temperature
Load: Tension

Trade Name: **Caledonia - 30mm - Granite - Tension**						**Anchor:** H8 Keep-Nut®		
Specimen Number	**Load Direction**	**Panel Thickness (mm)**	**Hole Depth (mm)**	**Hole Dia. (mm)**	**Load @ Failure (lbs-F)**	**Load @ Failure (kN)**	**Rate of Crosshead Travel**	**Mode of Failure**
H8-C-T-1	Tensile	30.62	8.69	11.97	514	2.29	0.075 to 0.085 in./min. (1.9 to 2.2 mm/min)	Keep-Nut pulled out. Partial failure cone.
H8-C-T-2	Tensile	31.38	9.03	11.99	628	2.79		Anchor pulled from specimen. Failure cone around anchor hole.
H8-C-T-3	Tensile	31.48	9.52	12.01	536	2.39		
H8-C-T-4	Tensile	31.29	8.62	12.02	624	2.78		
H8-C-T-5	Tensile	31.55	9.76	12.01	785	3.49		
					Average:	**617**	**2.75**	
					Standard Deviation:	106.7	0.5	
					Coefficient of Variation:	17.3%	17.3%	

Trade Name: **Caledonia - 30mm - Granite - Tension**						**Anchor:** H15 Keep-Nut®		
Specimen Number	**Load Direction**	**Panel Thickness (mm)**	**Hole Depth (mm)**	**Hole Dia. (mm)**	**Load @ Failure (lbs-F)**	**Load @ Failure (kN)**	**Rate of Crosshead Travel**	**Mode of Failure**
H15-C-T-1	Tensile	31.19	15.99	12.00	1,287	5.73	0.075 to 0.085 in./min. (1.9 to 2.2 mm/min)	Keep-Nut partially pulled from specimen. Cracks radiating from anchor hole.
H15-C-T-2	Tensile	31.30	15.67	12.05	1,479	6.58		Keep-Nut completely pulled from specimen. Cracks radiating from anchor hole.
H15-C-T-3	Tensile	31.24	16.10	12.04	1,216	5.41		Keep-Nut partially pulled from specimen. Cracks radiating from anchor hole.
H15-C-T-4	Tensile	31.44	16.14	12.05	1,135	5.05		
H15-C-T-5	Tensile	31.51	16.07	12.08	1,196	5.32		
					Average:	**1,263**	**5.62**	
					Standard Deviation:	132.6	0.6	
					Coefficient of Variation:	10.5%	10.5%	

Tests performed by: **R. Lawson**
Date: **September 23, 2020**

These tests were performed on a Applied Testing Systems Universal Testing Machine Model 910. Loads were measured on Interface Model 1020AF-12.5K-B Load Cell, Serial No. 561415A, Last Date of Calibration: May 27, 2020, traceable to the National Institute of Standards Technology (NIST).

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Laboratory Test Report

Member # 4729
Contact # 8249

Client: Specialinsert srl/ Chemical Concepts
Trade Name of Material: Caledonia
Finish: Polished
Country of Origin: Canada
Test Procedure: C1354 Strength of Individual Stone Anchorages in Dimension Stone
Rift Orientation: none specified
Preconditioning: none, room temperature
Load: Shear

Trade Name: **Caledonia - 30mm - Granite - Shear**						**Anchor:** H8 Keep-Nut®		
Specimen Number	**Load Direction**	**Panel Thickness (mm)**	**Hole Depth (mm)**	**Hole Dia. (mm)**	**Load @ Failure (lbs-F)**	**Load @ Failure (kN)**	**Rate of Crosshead Travel**	**Mode of Failure**
H8-C-S-1	Shear	31.60	9.81	12.03	1,722	7.66	0.075 to 0.085 in./min. (1.9 to 2.2 mm/min)	Partial failure cone. Anchor shaft bent.
H8-C-S-2	Shear	31.40	9.72	12.04	2,403	10.69		
H8-C-S-3	Shear	31.26	9.52	12.07	1,999	8.90		
H8-C-S-4	Shear	31.24	9.70	12.04	2,095	9.32		
H8-C-S-5	Shear	31.55	9.99	12.00	2,187	9.73		
				Average:	**2,081**	**9.26**		
				Standard Deviation:	250.4	1.11		
				Coefficient of Variation:	12.0%	12.0%		

Trade Name: **Caledonia - 30mm - Granite - Shear**						**Anchor:** H15 Keep-Nut®		
Specimen Number	**Load Direction**	**Panel Thickness (mm)**	**Hole Depth (mm)**	**Hole Dia. (mm)**	**Load @ Failure (lbs-F)**	**Load @ Failure (kN)**	**Rate of Crosshead Travel**	**Mode of Failure**
H15-C-S-1	Shear	31.09	15.63	12.07	3,012	13.40	0.075 to 0.085 in./min. (1.9 to 2.2 mm/min)	Stone failure - cracked through anchor hole.
H15-C-S-2	Shear	31.10	15.81	12.09	3,203	14.25		Partial failure cone.
H15-C-S-3	Shear	31.34	16.16	12.10	2,733	12.16		Stone failure - cracked through anchor hole.
H15-C-S-4	Shear	31.42	15.77	12.05	3,431	15.27		
H15-C-S-5	Shear	31.30	15.96	12.03	2,850	12.68		Stone failure - cracked through anchor hole.
				Average:	**3,046**	**13.55**		
				Standard Deviation:	278.6	1.24		
				Coefficient of Variation:	9.1%	9.1%		

Tests performed by: **R. Lawson**
Date: **September 25, 2020**

These tests were performed on a Applied Testing Systems Universal Testing Machine Model 910. Loads were measured on Interface Model 1020AF-12.5K-B Load Cell, Serial No. 561415A, Last Date of Calibration: May 27, 2020, traceable to the National Institute of Standards Technology (NIST).

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Laboratory Test Report

Member # 4729
Contact # 8249

Client: Specialinsert srl/ Chemical Concepts
Trade Name of Material: Delicatus Ice
Finish: Polished
Country of Origin: Brazil
Test Procedure: C1354 Strength of Individual Stone Anchorages in Dimension Stone
Rift Orientation: none specified
Preconditioning: none, room temperature
Load: Tension

Trade Name: **Delicatus Ice - 30mm - Granite - Tension**						**Anchor:** H8 Keep-Nut®		
Specimen Number	**Load Direction**	**Panel Thickness (mm)**	**Hole Depth (mm)**	**Hole Dia. (mm)**	**Load @ Failure (lbs-F)**	**Load @ Failure (kN)**	**Rate of Crosshead Travel**	**Mode of Failure**
H8-DI-T-1	Tensile	30.74	9.04	12.05	530	2.36	0.075 to 0.085 in./min. (1.9 to 2.2 mm/min)	Keep-Nut pulled out. Partial failure cone.
H8-DI-T-2	Tensile	30.40	9.33	12.00	422	1.88		Keep-Nut partially pulled out with partial failure cone.
H8-DI-T-3	Tensile	30.02	8.52	12.05	264	1.17		
H8-DI-T-4	Tensile	30.65	8.54	12.00	473	2.10		
H8-DI-T-5	Tensile	30.27	8.70	12.00	399	1.78		
					Average:	**418**	**1.86**	
					Standard Deviation:	99.6	0.44	
					Coefficient of Variation:	23.8%	23.8%	

Trade Name: **Delicatus Ice - 30mm - Granite - Tension**						**Anchor:** H15 Keep-Nut®		
Specimen Number	**Load Direction**	**Panel Thickness (mm)**	**Hole Depth (mm)**	**Hole Dia. (mm)**	**Load @ Failure (lbs-F)**	**Load @ Failure (kN)**	**Rate of Crosshead Travel**	**Mode of Failure**
H15-DI-T-1	Tensile	30.61	15.11	12.05	786	3.50	0.075 to 0.085 in./min. (1.9 to 2.2 mm/min)	Keep-Nut pulled out. Partial failure cone.
H15-DI-T-2	Tensile	30.59	15.78	12.04	774	3.44		Keep-Nut partially pulled from specimen. Cracks radiating from anchor hole.
H15-DI-T-3	Tensile	30.58	15.38	12.02	821	3.65		
H15-DI-T-4	Tensile	30.78	15.13	12.02	792	3.52		
H15-DI-T-5	Tensile	30.70	15.73	12.03	717	3.19		
					Average:	**778**	**3.46**	
					Standard Deviation:	38.2	0.17	
					Coefficient of Variation:	4.9%	4.9%	

Tests performed by: **R. Lawson**
Date: **September 23, 2020**

These tests were performed on a Applied Testing Systems Universal Testing Machine Model 910. H8 loads were measured on Interface Model 1210AF-1K-B Load Cell, Serial No. 560894-A. H15 loads were measured on Interface Model 1020AF-12.5K-B Load Cell, Serial No. 561415A, Last Date of Calibration for both cells: May 27, 2020, traceable to the National Institute of Standards Technology (NIST).

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Laboratory Test Report

Member # 4729
Contact # 8249

Client: Specialinsert srl/ Chemical Concepts
Trade Name of Material: Delecatus Ice
Finish: Polished
Country of Origin: Brazil
Test Procedure: C1354 Strength of Individual Stone Anchorages in Dimension Stone
Rift Orientation: none specified
Preconditioning: none, room temperature
Load: Shear

Trade Name: **Delicatus Ice - 30mm - Granite - Shear**						**Anchor:** H8 Keep-Nut®		
Specimen Number	**Load Direction**	**Panel Thickness (mm)**	**Hole Depth (mm)**	**Hole Dia. (mm)**	**Load @ Failure (lbs-F)**	**Load @ Failure (kN)**	**Rate of Crosshead Travel**	**Mode of Failure**
H8-DI-S-1	Shear	30.66	8.99	12.04	2,006	8.93	0.075 to 0.085 in./min. (1.9 to 2.2 mm/min)	Anchor shaft bent, stone broken.
H8-DI-S-2	Shear	30.24	8.72	12.02	2,125	9.46		
H8-DI-S-3	Shear	30.43	8.83	12.06	1,624	7.23		
H8-DI-S-4	Shear	30.34	8.62	12.04	1,530	6.81		
H8-DI-S-5	Shear	30.53	9.06	12.07	1,555	6.92		
				Average:	**1,768**	**7.87**		
				Standard Deviation:	277.0	1.23		
				Coefficient of Variation:	15.7%	15.7%		

Trade Name: **Delicatus Ice - 30mm - Granite - Shear**						**Anchor:** H15 Keep-Nut®		
Specimen Number	**Load Direction**	**Panel Thickness (mm)**	**Hole Depth (mm)**	**Hole Dia. (mm)**	**Load @ Failure (lbs-F)**	**Load @ Failure (kN)**	**Rate of Crosshead Travel**	**Mode of Failure**
H15-DI-S-1	Shear	31.09	15.64	12.05	1,762	7.84	0.075 to 0.085 in./min. (1.9 to 2.2 mm/min)	Anchor shaft failed, stone broken.
H15-DI-S-2	Shear	30.48	15.50	12.03	2,124	9.45		Anchor shaft bent, stone broken.
H15-DI-S-3	Shear	30.57	15.73	12.09	2,179	9.70		
H15-DI-S-4	Shear	30.64	15.52	12.01	2,329	10.36		
H15-DI-S-5	Shear	30.62	15.50	12.10	2,546	11.33		
				Average:	**2,188**	**9.74**		
				Standard Deviation:	288.8	1.29		
				Coefficient of Variation:	13.2%	13.2%		

Tests performed by: **R. Lawson**
Date: **September 24, 2020**

These tests were performed on a Applied Testing Systems Universal Testing Machine Model 910. Loads were measured on Interface Model 1020AF-12.5K-B Load Cell, Serial No. 561415A, Last Date of Calibration: May 27, 2020, traceable to the National Institute of Standards Technology (NIST).

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Laboratory Test Report

Member # 4729
Contact # 8249

Client: Specialinsert srl/ Chemical Concepts
Trade Name of Material: Caledonia - Polycor Ultra-Thin 1CM
Finish: polished
Country of Origin: Canada
Test Procedure: C1354 Strength of Individual Stone Anchorages in Dimension Stone
Rift Orientation: none specified
Preconditioning: none, room temperature

Trade Name: **Caledonia - 10mm - Granite**				Load Direction: **Perpendicular to the Surface (Tension)**			**Anchor:** H6 Keep-Nut®	
Specimen Number	**Load Direction**	**Panel Thickness (mm)**	**Hole Depth (mm)**	**Hole Dia. (mm)**	**Load @ Failure (lbs-F)**	**Load @ Failure (kN)**	**Rate of Crosshead Travel**	**Mode of Failure**
C-T-1	Tension	10.45	6.55	12.02	427	1.90	0.085 to 0.095 in./min. (2.2 to 2.4 mm/min)	Anchor partially pulled from stone.
C-T-2	Tension	10.49	6.43	12.01	247	1.10		
C-T-3	Tension	9.74	*	*	497	2.21		
C-T-4	Tension	10.43	*	*	456	2.03		
C-T-5	Tension	9.81	*	*	313	1.39		
					Average:	**388**	**1.73**	
					Standard Deviation:	104.3	0.46	
					Coefficient of Variation:	26.9%	26.9%	

** Keep-Nut installed by others.*

Trade Name: **Caledonia - 10mm - Granite**				Load Direction: **Parallel to the Surface (Shear)**			**Anchor:** H6 Keep-Nut®	
Specimen Number	**Load Direction**	**Panel Thickness (mm)**	**Hole Depth (mm)**	**Hole Dia. (mm)**	**Load @ Failure (lbs-F)**	**Load @ Failure (kN)**	**Rate of Crosshead Travel**	**Mode of Failure**
C-S-1	Shear	10.67	6.21	12.10	1,630	7.25	0.085 to 0.095 in./min. (2.2 to 2.4 mm/min)	Anchor pulled out of stone.
C-S-2	Shear	10.47	6.49	12.04	1,551	6.90		
C-S-3	Shear	10.30	6.13	12.08	356	1.58		Anchor pulled from specimen. Cracks noted on polished face.
C-S-4	Shear	10.44	6.33	12.05	1,539	6.85		Anchor pulled out of stone.
C-S-5	Shear	10.43	6.64	12.11	1,892	8.42		
					Average:	**1,394**	**6.20**	
					Standard Deviation:	597.2	2.66	
					Coefficient of Variation:	42.9%	42.9%	

Tests performed by: R. Lawson
Date of Testing: January 12, 2021
Date of Report: January 15, 2021
Reviewed by: C. Muehlbauer

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These tests were performed on a Applied Testing Systems Universal Testing Machine Model 910. Tension loads were measured on Interface Model 1210AF-1K-B Load Cell, Serial No. 560894-A. Shear loads were measured on Interface Model 1020AF-12.5K-B Load Cell, Serial No. 561415A, Last Date of Calibration for both cells: May 27, 2020, traceable to the National Institute of Standards Technology (NIST).

NATURAL STONE INSTITUTE

Laboratory Test Report

Member # 4729
Contact # 8249

Client: Specialinsert srl/ Chemical Concepts
Trade Name of Material: American Mist - Polycor Ultra-Thin 1CM
Finish: polished
Country of Origin: US
Test Procedure: C1354 Strength of Individual Stone Anchorages in Dimension Stone
Rift Orientation: none specified
Preconditioning: none, room temperature

Trade Name: **American Mist - 10mm - Granite**				Load Direction **Perpendicular to the Surface (Tension)**			**Anchor:** H6 Keep-Nut®	
Specimen Number	**Load Direction**	**Panel Thickness (mm)**	**Hole Depth (mm)**	**Hole Dia. (mm)**	**Load @ Failure (lbs-F)**	**Load @ Failure (kN)**	**Rate of Crosshead Travel**	**Mode of Failure**
AM-T-1	Tension	9.79	5.58	12.03	795	3.54	0.085 to 0.095 in./min. (2.2 to 2.4 mm/min)	Anchor partially pulled from stone.
AM-T-2	Tension	9.78	5.86	12.02	856	3.81		
AM-T-3	Tension	9.63	5.92	12.07	719	3.20		
AM-T-4	Tension	9.84	5.89	12.01	782	3.48		
AM-T-5	Tension	9.68	5.56	12.10	752	3.35		
				Average:	**781**	**3.47**		
				Standard Deviation:	51.3	0.23		
				Coefficient of Variation:	6.6%	6.6%		

Trade Name: **American Mist - 10mm - Granite**				Load Direction: **Parallel to the Surface (Shear)**			**Anchor:** H6 Keep-Nut®	
Specimen Number	**Load Direction**	**Panel Thickness (mm)**	**Hole Depth (mm)**	**Hole Dia. (mm)**	**Load @ Failure (lbs-F)**	**Load @ Failure (kN)**	**Rate of Crosshead Travel**	**Mode of Failure**
AM-S-1	Shear	9.66	6.11	12.05	2,398	10.67	0.085 to 0.095 in./min. (2.2 to 2.4 mm/min)	Anchor partially pulled from stone. Shear failure of threaded anchor bolt
AM-S-2	Shear	9.72	6.30	12.02	2,393	10.64		Anchor pulled out of stone.
AM-S-3	Shear	9.58	6.15	12.03	2,580	11.48		
AM-S-4	Shear	9.87	5.50	12.09	2,440	10.85		
AM-S-5	Shear	9.69	6.03	12.04	2,701	12.01		
				Average:	**2,502**	**11.13**		
				Standard Deviation:	134.4	0.60		
				Coefficient of Variation:	5.4%	5.4%		

Tests performed by: R. Lawson
Date of Testing: January 12, 2021
Date of Report: January 15, 2021
Reviewed by: C. Muehlbauer

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These tests were performed on a Applied Testing Systems Universal Testing Machine Model 910. Tension loads were measured on Interface Model 1210AF-1K-B Load Cell, Serial No. 560894-A. Shear loads were measured on Interface Model 1020AF-12.5K-B Load Cell, Serial No. 561415A, Last Date of Calibration for both cells: May 27, 2020, traceable to the National Institute of Standards Technology (NIST).

NATURAL STONE INSTITUTE

Laboratory Test Report

Contact # 84633

Client: Specialinsert srl/ Chemical Concepts
*Trade Name of Material: Crossville Porcelain / Notorious / *Femme Fatale*
*Finish: Unpolished with Cross-Sheen®
*Country of Origin: Italy
Test Procedure: C1354 Strength of Individual Stone Anchorages in Dimension Stone
Rift Orientation: n/a
Preconditioning: none, room temperature
Load: see below
** Stone identification information provided by client.*

Trade Name: **Crossville Porcelain Notorious "Femme Fatale" 12.5 mm**				Load Direction: **Perpendicular to the Surface (Tension)**			Anchor: **H6 Keep-Nut®**	
Specimen Number	**Load Direction**	**Panel Thickness (mm)**	**Hole Depth (mm)**	**Hole Dia. (mm)**	**Load @ Failure (lbs-F)**	**Load @ Failure (kN)**	**Rate of Crosshead Travel**	**Mode of Failure**
H6-FF-T-1	Tension	12.50	6.03	12.01	487	2.17	0.075 to 0.085 in./min. (1.9 to 2.2 mm/min)	Porcelain failure with cracks radiating from anchor.
H6-FF-T-2	Tension	12.50	6.17	12.11	529	2.35		
H6-FF-T-3	Tension	12.50	6.93	12.12	568	2.53		
H6-FF-T-4	Tension	12.50	6.59	12.12	513	2.28		
H6-FF-T-5	Tension	12.50	6.57	12.03	580	2.58		
H6-FF-T-6	Tension	12.50	6.47	12.03	524	2.33		
H6-FF-T-7	Tension	12.50	6.36	12.04	558	2.48		
H6-FF-T-8	Tension	12.50	6.58	12.06	522	2.32		
H6-FF-T-9	Tension	12.50	6.25	12.06	515	2.29		
H6-FF-T-10	Tension	12.50	6.32	12.05	617	2.75		
				Average:	**541**	**2.41**		
				Standard Deviation:	38.7	0.17		
				Coefficient of Variation:	7.2%	7.2%		

Trade Name: **Crossville Porcelain Notorious "Femme Fatale" 12.5 mm**				Load Direction: **Parallel to the Surface (Shear)**			Anchor: **H6 Keep-Nut®**	
Specimen Number	**Load Direction**	**Panel Thickness (mm)**	**Hole Depth (mm)**	**Hole Dia. (mm)**	**Load @ Failure (lbs-F)**	**Load @ Failure (kN)**	**Rate of Crosshead Travel**	**Mode of Failure**
H6-FF-S-1	Shear	12.50	6.45	12.14	2,014	8.96	0.075 to 0.085 in./min. (1.9 to 2.2 mm/min)	Porcelain failure. Anchor bolt bent.
H6-FF-S-2	Shear	12.50	6.24	12.08	2,203	9.80		
H6-FF-S-3	Shear	12.50	6.73	12.08	2,080	9.26		
H6-FF-S-4	Shear	12.50	6.54	12.08	1,995	8.88		
H6-FF-S-5	Shear	12.50	6.60	12.16	2,507	11.16		
H6-FF-S-6	Shear	12.50	6.11	12.02	1,919	8.54		
H6-FF-S-7	Shear	12.50	6.70	12.05	2,330	10.37		
H6-FF-S-8	Shear	12.50	6.25	12.04	2,307	10.27		
H6-FF-S-9	Shear	12.50	6.35	12.15	2,322	10.33		
H6-FF-S-10	Shear	12.50	6.63	12.13	2,394	10.65		
				Average:	**2,207**	**9.82**		
				Standard Deviation:	195.7	0.87		
				Coefficient of Variation:	8.9%	8.9%		

Tests performed by: R. Lawson
Date of Testing: Tuesday, July 6, 2021
Date of Report: Tuesday, July 20, 2021
Reviewed by: C. Muehlbauer

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These tests were performed on a Applied Testing Systems Universal Testing Machine Model 910. Tension loads were measured on Interface Model 1210AF-1K-B Load Cell, Serial No. 1181515A. Shear loads were measured on Interface Model 1020AF-12.5K-B Load Cell, Serial No. 561415A, Last Date of Calibration for both cells: May 24, 2021, traceable to the National Institute of Standards Technology (NIST).

NATURAL STONE INSTITUTE

Laboratory Test Report

Contact # 84633

Client: Specialinsert srl/ Chemical Concepts
Trade Name of Material: Dekton Sintered Stone
Finish: none specified
Country of Origin: Spain
Test Procedure: C1354 Strength of Individual Stone Anchorages in Dimension Stone
Rift Orientation: n/a
Preconditioning: Standard laboratory conditions (23±2 °C)
Load Direction: See below

Trade Name: **Dekton Sintered Stone - 8 mm**				Load Direction: **Perpendicular to the Surface (Tension)**			Anchor: **H5 Keep-Nut®**	
Specimen Number	**Load Direction**	**Panel Thickness (mm)**	**Hole Depth (mm)**	**Hole Dia. (mm)**	**Load @ Failure (lbs-F)**	**Load @ Failure (kN)**	**Rate of Crosshead Travel**	**Mode of Failure**
H5-T-1	Tension	7.82	5.90	12.04	212	0.94	0.075 to 0.085 in./min. (1.9 to 2.2 mm/min)	Anchor Embed Pull Out
H5-T-2	Tension	7.93	6.51	12.02	218	0.97		Substrate Fractured through Anchor Hole
H5-T-3	Tension	7.86	5.49	12.02	274	1.22		
H5-T-4	Tension	7.83	5.42	12.07	262	1.17		
H5-T-5	Tension	7.95	5.70	12.11	251	1.12		
				Average:	**243**	**1.08**		
				Standard Deviation:	27.3	0.12		
				Coefficient of Variation:	11.2%	11.2%		

Trade Name: **Dekton Sintered Stone - 8 mm**				Load Direction: **Parallel to the Surface (Shear)**			Anchor: **H5 Keep-Nut®**	
Specimen Number	**Load Direction**	**Panel Thickness (mm)**	**Hole Depth (mm)**	**Hole Dia. (mm)**	**Load @ Failure (lbs-F)**	**Load @ Failure (kN)**	**Rate of Crosshead Travel**	**Mode of Failure**
H5-S-1	Shear	0.00	0.00	0.00	-	0.00	0.075 to 0.085 in./min. (1.9 to 2.2 mm/min)	Substrate Broke while Installing Anchor
H5-S-2	Shear	7.85	5.84	12.05	1,086	4.83		Substrate Fractured through Anchor Hole
H5-S-3	Shear	7.84	5.89	12.01	1,106	4.92		
H5-S-4	Shear	7.88	5.94	12.13	1,192	5.30		
H5-S-5	Shear	7.87	5.98	12.04	1,040	4.63		
				Average:	**1,106**	**4.92**		
				Standard Deviation:	63.6	0.28		
				Coefficient of Variation:	5.8%	5.8%		

Tests performed by: R. Lawson
Date of Testing: Tuesday, July 19, 2022
Date of Report: Thursday, July 21, 2022
Reviewed by: M. Loflin

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These tests were performed on a Applied Testing Systems Universal Testing Machine Model 910. Tension loads were measured on Interface Model 1210AF-1K-B Load Cell, Serial No. 1181515-A. Shear loads were measured on Interface Model 1020AF-12.5K-B Load Cell, Serial No. 561415A, Last Date of Calibration for both cells: June 15, 2022, traceable to the National Institute of Standards Technology (NIST).

NATURAL STONE INSTITUTE

Laboratory Test Report

Contact # 84633

Client: Specialinsert srl/ Chemical Concepts
Trade Name of Material: Dekton Sintered Stone
Finish: none specified
Country of Origin: Spain
Test Procedure: C1354 Strength of Individual Stone Anchorages in Dimension Stone
Rift Orientation: n/a
Preconditioning: Standard laboratory conditions (23±2 °C)
Load Direction: See below

Trade Name: **Dekton Sintered Stone - 12 mm**				Load Direction: **Perpendicular to the Surface (Tension)**			Anchor: **H6 Keep-Nut®**	
Specimen Number	**Load Direction**	**Panel Thickness (mm)**	**Hole Depth (mm)**	**Hole Dia. (mm)**	**Load @ Failure (lbs-F)**	**Load @ Failure (kN)**	**Rate of Crosshead Travel**	**Mode of Failure**
H6-T-1	Tension	11.58	6.92	11.96	497	2.21	0.075 to 0.085 in./min. (1.9 to 2.2 mm/min)	Substrate Fractured through Anchor Hole
H6-T-2	Tension	11.55	7.23	11.94	475	2.11		
H6-T-3	Tension	11.45	7.22	11.95	522	2.32		
H6-T-4	Tension	11.48	7.37	11.96	503	2.24		
H6-T-5	Tension	11.45	6.94	11.97	443	1.97		
					Average:	**488**	**2.17**	
					Standard Deviation:	30.2	0.13	
					Coefficient of Variation:	6.2%	6.2%	

Trade Name: **Dekton Sintered Stone - 12 mm**				Load Direction: **Parallel to the Surface (Shear)**			Anchor: **H6 Keep-Nut®**	
Specimen Number	**Load Direction**	**Panel Thickness (mm)**	**Hole Depth (mm)**	**Hole Dia. (mm)**	**Load @ Failure (lbs-F)**	**Load @ Failure (kN)**	**Rate of Crosshead Travel**	**Mode of Failure**
H6-S-1	Shear	11.53	7.47	12.03	2,018	8.98	0.075 to 0.085 in./min. (1.9 to 2.2 mm/min)	Anchor Bolt Deformation; Substrate Fractured through Anchor Hole
H6-S-2	Shear	11.52	7.10	11.96	1,677	7.46		
H6-S-3	Shear	11.49	7.05	11.98	1,851	8.24		
H6-S-4	Shear	11.49	6.89	11.99	1,632	7.26		
H6-S-5	Shear	*only 4 specimens provided*						
					Average:	**1,795**	**7.99**	
					Standard Deviation:	176.4	0.79	
					Coefficient of Variation:	9.8%	9.8%	

Tests performed by: R. Lawson
Date of Testing: Tuesday, July 19, 2022
Date of Report: Thursday, July 21, 2022
Reviewed by: M. Loflin

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These tests were performed on a Applied Testing Systems Universal Testing Machine Model 910. Tension loads were measured on Interface Model 1210AF-1K-B Load Cell, Serial No. 1181515-A. Shear loads were measured on Interface Model 1020AF-12.5K-B Load Cell, Serial No. 561415A, Last Date of Calibration for both cells: June 15, 2022, traceable to the National Institute of Standards Technology (NIST).

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Laboratory Test Report

Contact # 84633

Client: Specialinsert srl/ Chemical Concepts
Trade Name of Material: Dekton Sintered Stone
Finish: none specified
Country of Origin: Spain
Test Procedure: C1354 Strength of Individual Stone Anchorages in Dimension Stone
Rift Orientation: n/a
Preconditioning: Standard laboratory conditions (23±2 °C)
Load Direction: See below

Trade Name: **Dekton Sintered Stone - 20 mm**				Load Direction: **Perpendicular to the Surface (Tension)**			Anchor: **H8 Keep-Nut®**	
Specimen Number	**Load Direction**	**Panel Thickness (mm)**	**Hole Depth (mm)**	**Hole Dia. (mm)**	**Load @ Failure (lbs-F)**	**Load @ Failure (kN)**	**Rate of Crosshead Travel**	**Mode of Failure**
H8-T-1	Tension	19.74	8.98	11.96	801	3.56	0.075 to 0.085 in./min. (1.9 to 2.2 mm/min)	Failure Cone Withdrawal Failure
H8-T-2	Tension	19.70	9.67	11.94	863	3.84		Substrate Fractured through Anchor Hole
H8-T-3	Tension	19.74	9.42	11.98	854	3.80		
H8-T-4	Tension	19.78	10.32	11.98	815	3.63		
H8-T-5	Tension	19.77	10.19	11.94	846	3.76		
				Average:	**836**	**3.72**		
				Standard Deviation:	26.5	0.12		
				Coefficient of Variation:	3.2%	3.2%		

Trade Name: **Dekton Sintered Stone - 20 mm**				Load Direction: **Parallel to the Surface (Shear)**			Anchor: **H8 Keep-Nut®**	
Specimen Number	**Load Direction**	**Panel Thickness (mm)**	**Hole Depth (mm)**	**Hole Dia. (mm)**	**Load @ Failure (lbs-F)**	**Load @ Failure (kN)**	**Rate of Crosshead Travel**	**Mode of Failure**
H8-S-1	Shear	19.76	9.65	11.99	2,174	9.67	0.075 to 0.085 in./min. (1.9 to 2.2 mm/min)	Anchor Embed Pull Out; Anchor Bolt Deformation; Partial Failure Cone Withdrawal Failure
H8-S-2	Shear	19.77	9.35	11.93	2,709	12.06		
H8-S-3	Shear	19.86	9.23	11.96	2,621	11.66		
H8-S-4	Shear	19.75	9.65	11.93	2,655	11.81		
H8-S-5	Shear	19.76	9.85	11.94	2,833	12.61		
				Average:	**2,598**	**11.56**		
				Standard Deviation:	250.5	1.11		
				Coefficient of Variation:	9.6%	9.6%		

Tests performed by: R. Lawson
Date of Testing: Wednesday, July 20, 2022
Date of Report: Thursday, July 21, 2022
Reviewed by: M. Loflin

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These tests were performed on a Applied Testing Systems Universal Testing Machine Model 910. Loads were measured on Interface Model 1020AF-12.5K-B Load Cell, Serial No. 561415A, Last Date of Calibration for both cells: June 15, 2022, traceable to the National Institute of Standards Technology (NIST).

NATURAL STONE INSTITUTE

Laboratory Test Report

Contact # 84633

Test Specimens Provided by: SPECIALINSERT SRL
Via Monfalcone 144
10136 TORINO (ITALY)
Trade Name of Material: Lapitec Sintered Stone - 12 mm
Finish: polished
Country of Origin: Italy
Test Procedure: C1354 Strength of Individual Stone Anchorages in Dimension Stone
Rift Orientation: none specified
Preconditioning: none, room temperature

Trade Name: **Lapitec Sintered Stone - 12 mm**				Load Direction: **Perpendicular to the Surface (Tension)**			Anchor: **H6 Keep-Nut®**	
Specimen Number	**Load Direction**	**Panel Thickness (mm)**	**Hole Depth (mm)**	**Hole Dia. (mm)**	**Load @ Failure (lbs-F)**	**Load @ Failure (kN)**	**Rate of Crosshead Travel**	**Mode of Failure**
T-H6-1	Tension	12.66	7.71	12.07	473	2.10	0.085 to 0.095 in./min. (2.2 to 2.4 mm/min)	Anchor partially pulled from specimen. Stone fractured through entire length.
T-H6-2	Tension	12.68	7.49	12.01	392	1.74		
T-H6-3	Tension	12.62	7.65	12.06	444	1.98		
T-H6-4	Tension	12.52	7.44	12.02	404	1.80		
T-H6-5	Tension	12.63	7.61	12.03	466	2.07		
					Average:	**436**	**1.94**	
					Standard Deviation:	36.4	0.16	
					Coefficient of Variation:	8.3%	8.3%	

Trade Name: **Lapitec Sintered Stone - 12 mm**				Load Direction: **Parallel to the Surface (Shear)**			Anchor: **H6 Keep-Nut®**	
Specimen Number	**Load Direction**	**Panel Thickness (mm)**	**Hole Depth (mm)**	**Hole Dia. (mm)**	**Load @ Failure (lbs-F)**	**Load @ Failure (kN)**	**Rate of Crosshead Travel**	**Mode of Failure**
S-H6-1	Shear	12.44	7.49	12.05	1,505	6.69	0.085 to 0.095 in./min. (2.2 to 2.4 mm/min)	Stone fractured into multiple pieces.
S-H6-2	Shear	12.57	7.75	12.07	1,433	6.37		
S-H6-3	Shear	12.43	7.55	12.05	1,404	6.25		
S-H6-4	Shear	12.63	7.57	12.08	1,503	6.69		
S-H6-5	Shear	12.49	7.55	12.07	1,345	5.98		
					Average:	**1,438**	**6.40**	
					Standard Deviation:	68.1	0.30	
					Coefficient of Variation:	4.7%	4.7%	

Tests performed by: R. Lawson
Date of Testing: January 14, 2021
Date of Report: January 18, 2021
Reviewed by: C. Muehlbauer

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These tests were performed on a Applied Testing Systems Universal Testing Machine Model 910. Tension loads were measured on Interface Model 1210AF-1K-B Load Cell, Serial No. 560894-A. Shear loads were measured on Interface Model 1020AF-12.5K-B Load Cell, Serial No. 561415A, Last Date of Calibration for both cells: May 27, 2020, traceable to the National Institute of Standards Technology (NIST).

NATURAL STONE INSTITUTE

Laboratory Test Report

Contact # 84633

Test Specimens Provided by: SPECIALINSERT SRL
Via Monfalcone 144
10136 TORINO (ITALY)
Trade Name of Material: Lapitec Sintered Stone - 20 mm
Finish: polished
Country of Origin: Italy
Test Procedure: C1354 Strength of Individual Stone Anchorages in Dimension Stone
Rift Orientation: none specified
Preconditioning: none, room temperature

Trade Name: **Lapitec Sintered Stone - 20 mm**				Load Direction: **Perpendicular to the Surface (Tension)**			Anchor: **H8 Keep-Nut®**	
Specimen Number	**Load Direction**	**Panel Thickness (mm)**	**Hole Depth (mm)**	**Hole Dia. (mm)**	**Load @ Failure (lbs-F)**	**Load @ Failure (kN)**	**Rate of Crosshead Travel**	**Mode of Failure**
T-H8-1	Tension	20.70	10.29	12.03	669	2.98	0.085 to 0.095 in./min. (2.2 to 2.4 mm/min)	Anchor partially pulled out.
T-H8-2	Tension	20.85	10.42	12.04	699	3.11		
T-H8-3	Tension	21.00	10.49	12.07	797	3.55		Anchor pulled out. Stone failed.
T-H8-4	Tension	20.73	10.24	12.03	595	2.65		Anchor partially pulled out.
T-H8-5	Tension	20.65	10.12	12.05	618	2.75		
					Average:	**676**	**3.01**	
					Standard Deviation:	79.3	0.35	
					Coefficient of Variation:	11.7%	11.7%	

Trade Name: **Lapitec Sintered Stone - 20 mm**				Load Direction: **Parallel to the Surface (Shear)**			Anchor: **H8 Keep-Nut®**	
Specimen Number	**Load Direction**	**Panel Thickness (mm)**	**Hole Depth (mm)**	**Hole Dia. (mm)**	**Load @ Failure (lbs-F)**	**Load @ Failure (kN)**	**Rate of Crosshead Travel**	**Mode of Failure**
S-H8-1	Shear	20.64	10.05	12.03	2,347	10.44	0.085 to 0.095 in./min. (2.2 to 2.4 mm/min)	Anchor pulled out. Partial failure cone.
S-H8-2	Shear	20.57	10.15	12.04	2,475	11.01		
S-H8-3	Shear	20.81	10.37	12.07	2,400	10.68		
S-H8-4	Shear	20.87	10.36	12.03	2,325	10.34		
S-H8-5	Shear	20.86	10.47	12.05	2,147	9.55		
					Average:	**2,339**	**10.40**	
					Standard Deviation:	121.8	0.54	
					Coefficient of Variation:	5.2%	5.2%	

Tests performed by: R. Lawson
Date of Testing: January 14, 2021
Date of Report: January 18, 2021
Reviewed by: C. Muehlbauer

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These tests were performed on a Applied Testing Systems Universal Testing Machine Model 910. Tension loads were measured on Interface Model 1210AF-1K-B Load Cell, Serial No. 560894-A. Shear loads were measured on Interface Model 1020AF-12.5K-B Load Cell, Serial No. 561415A, Last Date of Calibration for both cells: May 27, 2020, traceable to the National Institute of Standards Technology (NIST).

NATURAL STONE INSTITUTE

Laboratory Test Report

Contact # 84633

Test Specimens Provided by: SPECIALINSERT SRL
Via Monfalcone 144
10136 TORINO (ITALY)
Trade Name of Material: Lapitec Sintered Stone - 30 mm
Finish: polished
Country of Origin: Italy
Test Procedure: C1354 Strength of Individual Stone Anchorages in Dimension Stone
Rift Orientation: none specified
Preconditioning: none, room temperature

Trade Name: **Lapitec Sintered Stone - 30 mm**				Load Direction: **Perpendicular to the Surface (Tension)**			Anchor: **H15 Keep-Nut®**	
Specimen Number	**Load Direction**	**Panel Thickness (mm)**	**Hole Depth (mm)**	**Hole Dia. (mm)**	**Load @ Failure (lbs-F)**	**Load @ Failure (kN)**	**Rate of Crosshead Travel**	**Mode of Failure**
T-H15-1	Tension	30.95	16.42	12.06	1,323	5.88	0.085 to 0.095 in./min. (2.2 to 2.4 mm/min)	All stones fractured through anchor hole.
T-H15-2	Tension	30.89	16.52	12.06	1,636	7.28		
T-H15-3	Tension	30.84	16.34	12.05	1,385	6.16		
T-H15-4	Tension	30.90	16.35	12.04	1,675	7.45		
T-H15-5	Tension	30.92	16.32	12.06	1,640	7.30		
					Average:	**1,532**	**6.81**	
					Standard Deviation:	164.5	0.73	
					Coefficient of Variation:	10.7%	10.7%	

Trade Name: **Lapitec Sintered Stone - 30 mm**				Load Direction: **Parallel to the Surface (Shear)**			Anchor: **H15 Keep-Nut®**	
Specimen Number	**Load Direction**	**Panel Thickness (mm)**	**Hole Depth (mm)**	**Hole Dia. (mm)**	**Load @ Failure (lbs-F)**	**Load @ Failure (kN)**	**Rate of Crosshead Travel**	**Mode of Failure**
S-H15-1	Shear	31.05	17.28	11.94	2,439	10.85	0.085 to 0.095 in./min. (2.2 to 2.4 mm/min)	Anchor pulled from stone. Stone fractured into multiple pieces.
S-H15-2	Shear	31.02	16.42	12.04	2,702	12.02		Shear failure of threaded anchor bolt.
S-H15-3	Shear	31.07	16.50	12.05	2,626	11.68		
S-H15-4	Shear	31.02	16.83	12.05	2,825	12.57		
S-H15-5	Shear	31.12	16.44	12.05	2,537	11.29		
					Average:	**2,626**	**11.68**	
					Standard Deviation:	148.5	0.66	
					Coefficient of Variation:	5.7%	5.7%	

Tests performed by: R. Lawson
Date of Testing: January 14, 2021
Date of Report: January 18, 2021
Reviewed by: C. Muehlbauer

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These tests were performed on a Applied Testing Systems Universal Testing Machine Model 910. Loads were measured on Interface Model 1020AF-12.5K-B Load Cell, Serial No. 561415A, Last date of calibration: May 27, 2020, traceable to the National Institute of Standards Technology (NIST).

NATURAL STONE INSTITUTE

Laboratory Test Report

Contact # 84633

Client: Specialinsert srl/ Chemical Concepts
Trade Name of Material: Neolith Sintered Stone
Finish: various
Country of Origin: Spain
Test Procedure: C1354 Strength of Individual Stone Anchorages in Dimension Stone
Rift Orientation: n/a
Preconditioning: none, room temperature
Load: Tension

Trade Name: **Neolith Sintered Stone - light colors - 12 mm**				Load Direction: **Perpendicular to the Surface (Tension)**			Anchor: **H6 Keep-Nut®**	
Specimen Number	**Load Direction**	**Panel Thickness (mm)**	**Hole Depth (mm)**	**Hole Dia. (mm)**	**Load @ Failure (lbs-F)**	**Load @ Failure (kN)**	**Rate of Crosshead Travel**	**Mode of Failure**
H6-Lt-T-1	Tension	13.08	8.72	12.01	497	2.21	0.075 to 0.085 in./min. (1.9 to 2.2 mm/min)	Stone fractured through anchor hole.
H6-Lt-T-2	Tension	12.97	8.26	12.00	418	1.86		
H6-Lt-T-3	Tension	13.08	8.65	12.01	464	2.06		
H6-Lt-T-4	Tension	12.02	7.49	12.01	208	0.93		
H6-Lt-T-5	Tension	12.03	7.38	12.01	353	1.57		
H6-Lt-T-6	Tension	12.30	7.62	12.01	430	1.91		
H6-Lt-T-7	Tension	12.41	7.62	12.01	432	1.92		
				Average:	**400**	**1.78**		
				Standard Deviation:	95.6	0.43		
				Coefficient of Variation:	23.9%	23.9%		

Trade Name: **Neolith Sintered Stone - light colors - 12 mm**				Load Direction: **Parallel to the Surface (Shear)**			Anchor: **H6 Keep-Nut®**	
Specimen Number	**Load Direction**	**Panel Thickness (mm)**	**Hole Depth (mm)**	**Hole Dia. (mm)**	**Load @ Failure (lbs-F)**	**Load @ Failure (kN)**	**Rate of Crosshead Travel**	**Mode of Failure**
H6-Lt-S-1	Shear	12.33	7.20	12.01	1,681	7.48	0.075 to 0.085 in./min. (1.9 to 2.2 mm/min)	Stone fractured through anchor hole.
H6-Lt-S-2	Shear	12.23	7.50	12.01	1,491	6.63		
H6-Lt-S-3	Shear	12.01	7.52	12.01	1,121	4.99		
H6-Lt-S-4	Shear	11.80	7.65	12.01	1,344	5.98		
H6-Lt-S-5	Shear	12.96	8.46	12.01	2,181	9.71		
H6-Lt-S-6	Shear	12.98	8.20	12.00	2,535	11.28		
H6-Lt-S-7	Shear	12.77	8.12	12.00	2,369	10.54		
				Average:	**1,817**	**8.09**		
				Standard Deviation:	545.5	2.43		
				Coefficient of Variation:	30.0%	30.0%		

Tests performed by: R. Lawson
Date of Testing: Monday, March 8, 2021
Date of Report: Thursday, March 11, 2021
Reviewed by: C. Muehlbauer

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These tests were performed on a Applied Testing Systems Universal Testing Machine Model 910. Tension loads were measured on Interface Model 1210AF-1K-B Load Cell, Serial No. 560894-A. Shear loads were measured on Interface Model 1020AF-12.5K-B Load Cell, Serial No. 561415A, Last Date of Calibration for both cells: May 27, 2020, traceable to the National Institute of Standards Technology (NIST).

NATURAL STONE INSTITUTE

Laboratory Test Report

Contact # 84633

Client: Specialinsert srl/ Chemical Concepts
Trade Name of Material: Neolith Sintered Stone
Finish: various
Country of Origin: Spain
Test Procedure: C1354 Strength of Individual Stone Anchorages in Dimension Stone
Rift Orientation: n/a
Preconditioning: none, room temperature
Load: Tension

Trade Name: **Neolith Sintered Stone - dark colors - 12 mm**				Load Direction: **Perpendicular to the Surface (Tension)**			Anchor: **H6 Keep-Nut®**	
Specimen Number	**Load Direction**	**Panel Thickness (mm)**	**Hole Depth (mm)**	**Hole Dia. (mm)**	**Load @ Failure (lbs-F)**	**Load @ Failure (kN)**	**Rate of Crosshead Travel**	**Mode of Failure**
H6-Dk-T-1	Tension	12.50	7.74	12.00	268	1.19	0.075 to 0.085 in./min. (1.9 to 2.2 mm/min)	Stone fractured through anchor hole.
H6-Dk-T-2	Tension	12.40	7.87	12.01	480	2.14		
H6-Dk-T-3	Tension	11.93	7.02	12.00	501	2.23		
H6-Dk-T-4	Tension	12.34	7.31	12.01	325	1.45		
H6-Dk-T-4	Tension	11.92	7.12	12.01	396	1.76		
				Average:	**394**	**1.75**		
				Standard Deviation:	99.4	0.44		
				Coefficient of Variation:	25.2%	25.2%		

Trade Name: **Neolith Sintered Stone - dark colors - 12 mm**				Load Direction: **Parallel to the Surface (Shear)**			Anchor: **H6 Keep-Nut®**	
Specimen Number	**Load Direction**	**Panel Thickness (mm)**	**Hole Depth (mm)**	**Hole Dia. (mm)**	**Load @ Failure (lbs-F)**	**Load @ Failure (kN)**	**Rate of Crosshead Travel**	**Mode of Failure**
H6-Dk-S-1	Shear							Fractured during set-up.
H6-Dk-S-2	Shear	12.74	8.60	12.00	1,923	8.56	0.075 to 0.085 in./min. (1.9 to 2.2 mm/min)	Stone fractured through anchor hole.
H6-Dk-S-3	Shear	12.75	8.37	12.01	1,909	8.50		
H6-Dk-S-4	Shear	12.77	8.17	12.01	2,036	9.06		
H6-Dk-S-5	Shear							Broken when received.
				Average:	**1,956**	**8.70**		
				Standard Deviation:	69.6	0.31		
				Coefficient of Variation:	3.6%	3.6%		

Tests performed by: R. Lawson
Date of Testing: Monday, March 8, 2021
Date of Report: Thursday, March 11, 2021
Reviewed by: C. Muehlbauer

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These tests were performed on a Applied Testing Systems Universal Testing Machine Model 910. Tension loads were measured on Interface Model 1210AF-1K-B Load Cell, Serial No. 560894-A. Shear loads were measured on Interface Model 1020AF-12.5K-B Load Cell, Serial No. 561415A, Last Date of Calibration for both cells: May 27, 2020, traceable to the National Institute of Standards Technology (NIST).

NATURAL STONE INSTITUTE

Laboratory Test Report

Contact # 84633

Client: Specialinsert srl/ Chemical Concepts
Trade Name of Material: Neolith Sintered Stone
Finish: various
Country of Origin: Spain
Test Procedure: C1354 Strength of Individual Stone Anchorages in Dimension Stone
Rift Orientation: n/a
Preconditioning: none, room temperature
Load: Shear

Trade Name: **Neolith Sintered Stone - Aspen Grey - 20 mm**				Load Direction: **Perpendicular to the Surface (Tension)**			Anchor: **H8 Keep-Nut®**	
Specimen Number	**Load Direction**	**Panel Thickness (mm)**	**Hole Depth (mm)**	**Hole Dia. (mm)**	**Load @ Failure (lbs-F)**	**Load @ Failure (kN)**	**Rate of Crosshead Travel**	**Mode of Failure**
H8-Dk-T-6	Tension	19.67	8.21	12.01	804	3.58	0.075 to 0.085 in./min. (1.9 to 2.2 mm/min)	Stone fractured through anchor hole.
H8-Dk-T-7	Tension	19.69	8.57	12.01	846	3.76		
H8-Dk-T-8	Tension	19.39	8.12	12.00	893	3.97		
H8-Dk-T-9	Tension	19.49	8.47	12.00	616	2.74		
H8-Dk-T-10	Tension	19.82	8.55	12.01	870	3.87		Asymetrical pull out cone.
				Average:	**806**	**3.59**		
				Standard Deviation:	111.1	0.49		
				Coefficient of Variation:	13.8%	13.8%		

Trade Name: **Neolith Sintered Stone - Aspen Grey - 20 mm**				Load Direction: **Parallel to the Surface (Shear)**			Anchor: **H8 Keep-Nut®**	
Specimen Number	**Load Direction**	**Panel Thickness (mm)**	**Hole Depth (mm)**	**Hole Dia. (mm)**	**Load @ Failure (lbs-F)**	**Load @ Failure (kN)**	**Rate of Crosshead Travel**	**Mode of Failure**
H8-Dk-S-1	Shear	19.54	8.37	12.01	2,520	11.21	0.075 to 0.085 in./min. (1.9 to 2.2 mm/min)	Stone fractured through anchor hole.
H8-Dk-S-2	Shear	19.73	8.26	12.01	2,555	11.37		
H8-Dk-S-3	Shear	19.50	8.25	12.00	2,439	10.85		
H8-Dk-S-4	Shear	19.83	9.20	12.01	2,567	11.42		
H8-Dk-S-5	Shear	19.62	9.35	12.01	2,803	12.47		
				Average:	**2,577**	**11.47**		
				Standard Deviation:	136.0	0.61		
				Coefficient of Variation:	5.3%	5.3%		

Tests performed by: R. Lawson
Date of Testing: Monday, March 8, 2021
Date of Report: Thursday, March 11, 2021
Reviewed by: C. Muehlbauer

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These tests were performed on a Applied Testing Systems Universal Testing Machine Model 910. Tension loads were measured on Interface Model 1210AF-1K-B Load Cell, Serial No. 560894-A. Shear loads were measured on Interface Model 1020AF-12.5K-B Load Cell, Serial No. 561415A, Last Date of Calibration for both cells: May 27, 2020, traceable to the National Institute of Standards Technology (NIST).

NATURAL STONE INSTITUTE

Laboratory Test Report

DATE of Report: 28 May, 2020
Project Number:
Test Specimens Provided by: Chemical Concepts/Specialinsert

Test Data Tables

Trade Name of Material:	SapienStone			**Anchor Type:**	H6 Keep-Nut®		**Date Tested:**	04 November, 2019
Specimen Number	**Load Direction**	**Panel Thickness (mm)**	**Hole Depth (mm)**	**Hole Diameter (mm)**	**Load @ Failure (lbs-F)**	**Load @ Failure (kN)**	**Rate of Crosshead Travel**	**Mode of Failure**
1	Tensile	12.67	6.5 mm (Tolerance of +1.0, -0.0 verified by "go/no-go" Gauge)	12 mm (Tolerance verified by "go/no-go" Gauge)	677	3.01	0.075 to 0.085 in./min. (1.9 to 2.2 mm/min)	Specimen failure - flexural fractures radiating from anchor hole on back face.
2	Tensile	12.61			639	2.84		
3	Tensile	12.63			604	2.69		
4	Tensile	12.67			590	2.63		
5	Tensile	12.63			560	2.49		
				Average:	**614**	**2.73**		
				Standard Deviation:	45.2	0.20		
				Coefficient of Variation:	7.4%	7.4%		

Trade Name of Material:	SapienStone			**Anchor Type:**	H6 Keep-Nut®		**Date Tested:**	04 November, 2019
Specimen Number	**Load Direction**	**Panel Thickness (mm)**	**Hole Depth (mm)**	**Hole Diameter (mm)**	**Load @ Failure (lbs-F)**	**Load @ Failure (kN)**	**Rate of Crosshead Travel**	**Mode of Failure**
1	Shear	12.67	6.5 mm (Tolerance of +1.0, -0.0 verified by "go/no-go" Gauge)	12 mm (Tolerance verified by "go/no-go" Gauge)	1,685	7.50	0.075 to 0.085 in./min. (1.9 to 2.2 mm/min)	Shear failure of bolt shaft.
2	Shear	12.63			1,690	7.52		
3	Shear	12.71			1,698	7.56		
4	Shear	12.70			1,703	7.58		
5	Shear	12.65			1,576	7.01		
				Average:	**1,670**	**7.43**		
				Standard Deviation:	53.2	0.24		
				Coefficient of Variation:	3.2%	3.2%		

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NATURAL STONE INSTITUTE

Laboratory Test Report

Contact # 84633

Client: Specialinsert srl/ Chemical Concepts
Trade Name of Material: Silestone Sintered Stone
Finish: none specified
Country of Origin: Spain
Test Procedure: C1354 Strength of Individual Stone Anchorages in Dimension Stone
Rift Orientation: n/a
Preconditioning: Standard laboratory conditions (23±2 °C)
Load Direction: See below

Trade Name: **Silestone Sintered Stone - 12 mm**				Load Direction: **Perpendicular to the Surface (Tension)**			Anchor: **H6 Keep-Nut®**	
Specimen Number	**Load Direction**	**Panel Thickness (mm)**	**Hole Depth (mm)**	**Hole Dia. (mm)**	**Load @ Failure (lbs-F)**	**Load @ Failure (kN)**	**Rate of Crosshead Travel**	**Mode of Failure**
H6-T-1	Tension	12.10	7.41	12.04	596	2.65	0.075 to 0.085 in./min. (1.9 to 2.2 mm/min)	Substrate Fracture through Anchor Hole
H6-T-2	Tension	12.16	7.28	12.06	615	2.74		
H6-T-3	Tension	12.05	7.34	12.02	598	2.66		
H6-T-4	Tension	12.14	7.05	12.03	617	2.75		
H6-T-5	Tension	12.18	7.28	12.18	551	2.45		Anchor Embed Pull Out
					Average:	**595**	**2.65**	
					Standard Deviation:	26.6	0.12	
					Coefficient of Variation:	4.5%	4.5%	

Trade Name: **Silestone Sintered Stone - 12 mm**				Load Direction: **Parallel to the Surface (Shear)**			Anchor: **H6 Keep-Nut®**	
Specimen Number	**Load Direction**	**Panel Thickness (mm)**	**Hole Depth (mm)**	**Hole Dia. (mm)**	**Load @ Failure (lbs-F)**	**Load @ Failure (kN)**	**Rate of Crosshead Travel**	**Mode of Failure**
H6-S-1	Shear	12.16	7.62	12.04	2,294	10.21	0.075 to 0.085 in./min. (1.9 to 2.2 mm/min)	Anchor Bolt Deformation; Anchor Embed Pull Out
H6-S-2	Shear	12.12	7.32	12.02	2,485	11.06		
H6-S-3	Shear	12.14	7.40	12.04	2,301	10.24		
H6-S-4	Shear	12.07	7.48	12.04	2,392	10.64		
H6-S-5	Shear	12.07	7.18	12.05	2,336	10.40		
					Average:	**2,362**	**10.51**	
					Standard Deviation:	79.1	0.35	
					Coefficient of Variation:	3.4%	3.4%	

Tests performed by: R. Lawson
Date of Testing: Wednesday, July 20, 2022
Date of Report: Thursday, July 21, 2022
Reviewed by: M. Loflin

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These tests were performed on a Applied Testing Systems Universal Testing Machine Model 910. Tension loads were measured on Interface Model 1210AF-1K-B Load Cell, Serial No. 1181515-A. Shear loads were measured on Interface Model 1020AF-12.5K-B Load Cell, Serial No. 561415A, Last Date of Calibration for both cells: June 15, 2022, traceable to the National Institute of Standards Technology (NIST).

NATURAL STONE INSTITUTE

Laboratory Test Report

Contact # 84633

Client: Specialinsert srl/ Chemical Concepts
Trade Name of Material: Silestone Sintered Stone
Finish: none specified
Country of Origin: Spain
Test Procedure: C1354 Strength of Individual Stone Anchorages in Dimension Stone
Rift Orientation: n/a
Preconditioning: Standard laboratory conditions (23±2 °C)
Load Direction: See below

Trade Name: **Silestone Sintered Stone - 20 mm**				Load Direction: **Perpendicular to the Surface (Tension)**			Anchor: **H8.5 Keep-Nut®**	
Specimen Number	**Load Direction**	**Panel Thickness (mm)**	**Hole Depth (mm)**	**Hole Dia. (mm)**	**Load @ Failure (lbs-F)**	**Load @ Failure (kN)**	**Rate of Crosshead Travel**	**Mode of Failure**
H8-T-1	Tension	20.13	9.29	12.11	1,060	4.72	0.075 to 0.085 in./min. (1.9 to 2.2 mm/min)	Substrate Fracture through Anchor Hole
H8-T-2	Tension	19.77	9.52	12.07	1,034	4.60		Anchor Embed Pull Out
H8-T-3	Tension	19.95	9.54	12.01	1,140	5.07		Substrate Fracture through Anchor Hole
H8-T-4	Tension	19.77	9.14	12.06	1,111	4.94		
H8-T-5	Tension	20.13	9.30	12.11	1,123	5.00		
				Average:	**1,094**	**4.87**		
				Standard Deviation:	44.7	0.20		
				Coefficient of Variation:	4.1%	4.1%		

Trade Name: **Silestone Sintered Stone - 20 mm**				Load Direction: **Parallel to the Surface (Shear)**			Anchor: **H8.5 Keep-Nut®**	
Specimen Number	**Load Direction**	**Panel Thickness (mm)**	**Hole Depth (mm)**	**Hole Dia. (mm)**	**Load @ Failure (lbs-F)**	**Load @ Failure (kN)**	**Rate of Crosshead Travel**	**Mode of Failure**
H8-S-1	Shear	19.85	7.24	12.04	2,566	11.42	0.075 to 0.085 in./min. (1.9 to 2.2 mm/min)	Anchor Pull Out, Anchor Bolt Deformation; Partial Failure Cone Withdrawal Failure
H8-S-2	Shear	19.72	9.46	12.13	2,592	11.53		
H8-S-3	Shear	19.83	9.40	12.05	2,615	11.64		
H8-S-4	Shear	19.95	8.23	12.10	2,513	11.18		
H8-S-5	Shear	19.85	9.51	12.09	2,467	10.98		
				Average:	**2,551**	**11.35**		
				Standard Deviation:	60.2	0.27		
				Coefficient of Variation:	2.4%	2.4%		

Tests performed by: R. Lawson
Date of Testing: Wednesday, July 20, 2022
Date of Report: Thursday, July 21, 2022
Reviewed by: M. Loflin

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These tests were performed on a Applied Testing Systems Universal Testing Machine Model 910. Loads were measured on Interface Model 1020AF-12.5K-B Load Cell, Serial No. 561415A, Last Date of Calibration: June 15, 2022, traceable to the National Institute of Standards Technology (NIST).

NATURAL STONE INSTITUTE

Laboratory Test Report

Contact # 84633

Client: Specialinsert srl/ Chemical Concepts
Trade Name of Material: Silestone Sintered Stone
Finish: none specified
Country of Origin: Spain
Test Procedure: C1354 Strength of Individual Stone Anchorages in Dimension Stone
Rift Orientation: n/a
Preconditioning: Standard laboratory conditions (23±2 °C)
Load Direction: See below

Trade Name: **Silestone Sintered Stone - 30 mm**				Load Direction: **Perpendicular to the Surface (Tension)**			Anchor: **H15 Keep-Nut®**	
Specimen Number	**Load Direction**	**Panel Thickness (mm)**	**Hole Depth (mm)**	**Hole Dia. (mm)**	**Load @ Failure (lbs-F)**	**Load @ Failure (kN)**	**Rate of Crosshead Travel**	**Mode of Failure**
H15-T-1	Tension	28.48	16.12	12.20	1,087	4.84	0.075 to 0.085 in./min. (1.9 to 2.2 mm/min)	Anchor Embed Pull Out
H15-T-2	Tension	28.26	15.94	15.10	1,141	5.08		
H15-T-3	Tension	28.32	15.84	12.12	1,127	5.02		
H15-T-4	Tension	28.16	15.76	12.07	1,082	4.81		
H15-T-5	Tension	28.44	15.81	12.06	1,038	4.62		
				Average:	**1,095**	**4.87**		
				Standard Deviation:	40.7	0.18		
				Coefficient of Variation:	3.7%	3.7%		

Trade Name: **Silestone Sintered Stone - 30 mm**				Load Direction: **Parallel to the Surface (Shear)**			Anchor: **H15 Keep-Nut®**	
Specimen Number	**Load Direction**	**Panel Thickness (mm)**	**Hole Depth (mm)**	**Hole Dia. (mm)**	**Load @ Failure (lbs-F)**	**Load @ Failure (kN)**	**Rate of Crosshead Travel**	**Mode of Failure**
H15-S-1	Shear	28.35	15.69	12.08	2,910	12.95	0.075 to 0.085 in./min. (1.9 to 2.2 mm/min)	Anchor Bolt Shear Failure
H15-S-2	Shear	28.20	15.94	12.04	3,135	13.95		
H15-S-3	Shear	28.15	15.73	12.08	3,138	13.96		
H15-S-4	Shear	28.14	15.82	12.15	3,004	13.37		
H15-S-5	Shear	28.17	15.81	12.20	2,988	13.30		
				Average:	**3,035**	**13.51**		
				Standard Deviation:	99.3	0.44		
				Coefficient of Variation:	3.3%	3.3%		

Tests performed by: R. Lawson
Date of Testing: Tuesday, July 19, 2022
Date of Report: Thursday, July 21, 2022
Reviewed by: M. Loflin

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These tests were performed on a Applied Testing Systems Universal Testing Machine Model 910. Loads were measured on Interface Model 1020AF-12.5K-B Load Cell, Serial No. 561415A, Last Date of Calibration: June 15, 2022, traceable to the National Institute of Standards Technology (NIST).

Laboratory Test Report

DATE of Report: 28 May, 2020
Project Number:
Test Specimens Provided by: Chemical Concepts/Specialinsert

Test Data Tables

Trade Name of Material:	Envel™			**Anchor Type:**	H8 Keep-Nut®		**Date Tested:**	04 November, 2019
Specimen Number	**Load Direction**	**Panel Thickness (mm)**	**Hole Depth (mm)**	**Hole Diameter (mm)**	**Load @ Failure (lbs-F)**	**Load @ Failure (kN)**	**Rate of Crosshead Travel**	**Mode of Failure**
1	Tensile	15.93	9 mm (Tolerance of +1.0, -0.0 verified by "go/no-go" Gauge)	12 mm (Tolerance verified by "go/no-go" Gauge)	438	1.95	0.075 to 0.085 in./min. (1.9 to 2.2 mm/min)	no visible failure.
2	Tensile	15.35			394	1.75		cracks radiating from anchor hole.
3	Tensile	15.52			496	2.21		anchor partially pulled from specimen. cracks radiating from
4	Tensile	15.47			416	1.85		anchor partially pulled from specimen.
5	Tensile	15.52			457	2.03		anchor partially pulled from specimen.
				Average:	**440**	**1.96**		
				Standard Deviation:	39.1	0.17		
				Coefficient of Variation:	8.9%	8.9%		

Trade Name of Material:	Envel™			**Anchor Type:**	H8 Keep-Nut®		**Date Tested:**	04 November, 2019
Specimen Number	**Load Direction**	**Panel Thickness (mm)**	**Hole Depth (mm)**	**Hole Diameter (mm)**	**Load @ Failure (lbs-F)**	**Load @ Failure (kN)**	**Rate of Crosshead Travel**	**Mode of Failure**
1	Shear	15.57	9 mm (Tolerance of +1.0, -0.0 verified by "go/no-go" Gauge)	12 mm (Tolerance verified by "go/no-go" Gauge)	1,568	6.98	0.075 to 0.085 in./min. (1.9 to 2.2 mm/min)	Shear failure of bolt shaft and anchor partially dislodged.
2	Shear	15.30			1,432	6.37		Anchor completely dislodged.
3	Shear	15.52			1,621	7.21		Anchor completely dislodged.
4	Shear	15.26			1,555	6.92		Shear failure of bolt shaft and anchor partially dislodged.
5	Shear	15.36			1,647	7.33		Anchor completely dislodged.
				Average:	**1,565**	**6.96**		
				Standard Deviation:	83.2	0.37		
				Coefficient of Variation:	5.3%	5.3%		

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Laboratory Test Report

DATE of Report: 28 May, 2020
Project Number:
Test Specimens Provided by: Chemical Concepts/Specialinsert

Test Data Tables

STONES IN THIS GROUP WERE PRECONDITIONED TO 75 FREEZE/THAW CYCLES PRIOR TO TESTING								
Trade Name of Material:	15.8mm Envel®			**Anchor Type:**	H8 Keep-Nut®		**Date Tested:**	20 April, 2020
Specimen Number	**Load Direction**	**Panel Thickness (mm)**	**Hole Depth (mm)**	**Hole Diameter (mm)**	**Load @ Failure (lbs-F)**	**Load @ Failure (kN)**	**Rate of Crosshead Travel**	**Mode of Failure**
1	Tensile	15.16	8.24	12.06	387	1.72	0.075 to 0.085 in./min. (1.9 to 2.2 mm/min)	Anchor partially pulled from specimen. Cracks radiating from
2	Tensile	14.43	8.29	12.14	442	1.97		Anchor partially pulled from specimen. No visible cracks.
3	Tensile	14.39	8.40	12.03	362	1.61		Anchor partially pulled from specimen. Cracks radiating from
4	Tensile	15.62	8.57	12.02	421	1.87		Anchor partially pulled from specimen. No visible cracks.
5	Tensile	15.61	8.30	12	385	1.71		
				Average:	**399**	**1.78**		
				Standard Deviation:	31.8	0.14		
				Coefficient of Variation:	8.0%	8.0%		

STONES IN THIS GROUP WERE PRECONDITIONED TO 75 FREEZE/THAW CYCLES PRIOR TO TESTING								
Trade Name of Material:	15.8mm Envel®			**Anchor Type:**	H8 Keep-Nut®		**Date Tested:**	20 April, 2020
Specimen Number	**Load Direction**	**Panel Thickness (mm)**	**Hole Depth (mm)**	**Hole Diameter (mm)**	**Load @ Failure (lbs-F)**	**Load @ Failure (kN)**	**Rate of Crosshead Travel**	**Mode of Failure**
1	Shear	15.37	8.44	12.03	1,699	7.56	0.075 to 0.085 in./min. (1.9 to 2.2 mm/min)	Anchor pulled from specimen.
2	Shear	15.78	8.39	11.95	1,449	6.45		Anchor pulled from specimen, cracking specimen.
3	Shear	15.19	8.24	11.88	1,522	6.77		Anchor pulled from specimen.
4	Shear	15.49	8.35	12.05	1,632	7.26		Anchor pulled from specimen.
5	Shear	15.20	8.52	12.01	1,484	6.60		Shear failure of threaded anchor bolt.
				Average:	**1,557**	**6.93**		
				Standard Deviation:	104.9	0.47		
				Coefficient of Variation:	6.7%	6.7%		

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Laboratory Test Report

DATE of Report: 28 May, 2020
Project Number:
Test Specimens Provided by: Chemical Concepts/Specialinsert

Test Data Tables

Trade Name of Material:	Envel™			**Anchor Type:**	H15 Keep-Nut®		**Date Tested:**	04 November, 2019
Specimen Number	**Load Direction**	**Panel Thickness (mm)**	**Hole Depth (mm)**	**Hole Diameter (mm)**	**Load @ Failure (lbs-F)**	**Load @ Failure (kN)**	**Rate of Crosshead Travel**	**Mode of Failure**
1	Tensile	18.86	15.5 mm (Tolerance of +1.0, -0.0 verified by "go/no-go" Gauge)	12 mm (Tolerance verified by "go/no-go" Gauge)	556	2.47	0.075 to 0.085 in./min. (1.9 to 2.2 mm/min)	anchor pulled from specimen - cracks radiating from anchor hole.
2	Tensile	18.82			482	2.14		anchor partially pulled from specimen - cracks radiating from
3	Tensile	19.10			585	2.60		cracks radiating from anchor hole.
4	Tensile	18.84			665	2.96		anchor partially pulled from specimen - cracks radiating from
5	Tensile	19.18			718	3.20		anchor partially pulled from specimen - cracks radiating from
				Average:	**601**	**2.68**		
				Standard Deviation:	92.5	0.41		
				Coefficient of Variation:	15.4%	15.4%		

Trade Name of Material:	Envel™			**Anchor Type:**	H15 Keep-Nut®		**Date Tested:**	04 November, 2019
Specimen Number	**Load Direction**	**Panel Thickness (mm)**	**Hole Depth (mm)**	**Hole Diameter (mm)**	**Load @ Failure (lbs-F)**	**Load @ Failure (kN)**	**Rate of Crosshead Travel**	**Mode of Failure**
1	Shear	19.20	15.5 mm (Tolerance of +1.0, -0.0 verified by "go/no-go" Gauge)	12 mm (Tolerance verified by "go/no-go" Gauge)	1,660	7.39	0.075 to 0.085 in./min. (1.9 to 2.2 mm/min)	Shear failure of bolt shaft and flexural cracking on back face of test specimen.
2	Shear	19.09			1,659	7.38		
3	Shear	19.13			1,516	6.75		
4	Shear	19.13			1,531	6.81		
5	Shear	18.77			1,590	7.08		
				Average:	**1,591**	**7.08**		
				Standard Deviation:	68.2	0.30		
				Coefficient of Variation:	4.3%	4.3%		

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Test Data Tables

STONES IN THIS GROUP WERE PRECONDITIONED TO 75 FREEZE/THAW CYCLES PRIOR TO TESTING								
Trade Name of Material:	19mm Envel®			**Anchor Type:**	H15 Keep-Nut®		**Date Tested:**	20 April, 2020
Specimen Number	**Load Direction**	**Panel Thickness (mm)**	**Hole Depth (mm)**	**Hole Diameter (mm)**	**Load @ Failure (lbs-F)**	**Load @ Failure (kN)**	**Rate of Crosshead Travel**	**Mode of Failure**
1	Tensile	18.72	15.19	11.96	560	2.49	0.075 to 0.085 in./min. (1.9 to 2.2 mm/min)	Anchor partially pulled from specimen. Cracks radiating from ancohor hole.
2	Tensile	19.15	15.22	11.98	628	2.79		
3	Tensile	19.21	15.22	12.02	629	2.80		
4	Tensile	19.14	14.97	12.06	663	2.95		
5	Tensile	18.98	15.02	12	664	2.95		
				Average:	**629**	**2.80**		
				Standard Deviation:	42.3	0.19		
				Coefficient of Variation:	6.7%	6.7%		

STONES IN THIS GROUP WERE PRECONDITIONED TO 75 FREEZE/THAW CYCLES PRIOR TO TESTING								
Trade Name of Material:	19mm Envel®			**Anchor Type:**	H15 Keep-Nut®		**Date Tested:**	20 April, 2020
Specimen Number	**Load Direction**	**Panel Thickness (mm)**	**Hole Depth (mm)**	**Hole Diameter (mm)**	**Load @ Failure (lbs-F)**	**Load @ Failure (kN)**	**Rate of Crosshead Travel**	**Mode of Failure**
1	Shear	19.13	14.90	12.01	1,654	7.36	0.075 to 0.085 in./min. (1.9 to 2.2 mm/min)	Shear failure of threaded anchor bolt and cracked specimen.
2	Shear	18.84	15.25	12.01	1,462	6.51		
3	Shear	19.14	15.07	12.03	1,576	7.01		
4	Shear	18.76	15.14	11.88	1,613	7.18		
5	Shear	19.17	15.22	12.07	1,549	6.89		
				Average:	**1,571**	**6.99**		
				Standard Deviation:	72.5	0.32		
				Coefficient of Variation:	4.6%	4.6%		

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