

**Certified Test Results (US)** TAKTL® panels are tested according to the methods for ASTM C1185 without sealer or coating. The products have been certified to meet the standards of ASTM C1186. All test results exceed the requirements for classification of Type A, Grade IV (highest grade). ASTM C 1186 is the International Building Code referenced standard for exterior fiber cement panels (1405.16).

Except as noted, the following results reflect testing completed by Architectural Testing, Inc. (York, PA) on 0.5” panels cast at the TAKTL production plant in Pittsburgh, PA and selected at random by ATI during certification. CAN/ULC S114-05 testing was conducted by Intertek (Coquitlam, BC).

Please contact our Technical Support team for project-specific consultation on Certified Test Results and Recommended Design Values.

**Quality Management + Certification** TAKTL’s Quality Management System monitors parameters such as product dimensions, physical properties, flexural strength, anchor pullout strength, color and curing conditions, and provides full traceability for each panel back to raw materials. Under the independent quality certification program, ATI conducts unannounced audits of TAKTL operations at least four times annually, verifying procedures, reviewing QMS records, and selecting panels at random for laboratory testing and verification. TAKTL employs a full-time Quality Administrator, who monitors procedures, testing, training and reporting.

Reference TAKTL Doc. Q2-1 for complete quality and acceptance criteria.

ASTM C 1186 CERTIFICATION - GRADE IV		3RD PARTY TESTING CERTIFIED RESULTS (SI)	RECOMMENDED DESIGN VALUES (SI)	CERTIFICATION REQUIREMENT DETAILS
ASTM C 1185-08	Tolerance - Length	0.00 mm	6.35 mm	25.4mm maximum variation from nominal dimension
ASTM C 1185-08	Tolerance - Width	0.00 mm	6.35 mm	25.4mm maximum variation from nominal dimension
ASTM C 1185-08	Tolerance - Thickness within Sheets	3.65 %	≤ 15 %	≤ 15% variation between extreme measure of max measured value
ASTM C 1185-08	Tolerance - Thickness between Sheets	0.5588 mm	≤ 1.27 mm	≤ 1.27mm variation between sheets
ASTM C 1185-08	Tolerance - Squareness (Diagonal)	0.00 mm	≤ 0.79 mm	Length variation ≤ 2.6mm/m of sheet length
ASTM C 1185-08	Tolerance - Squareness (Width Edge)	0.00 mm	≤ 0.79 mm	Variation between opposite edges of sheet ≤ 2.6mm/m
ASTM C 1185-08	Tolerance - Squareness (Length Edge)	0.00 mm	≤ 0.79 mm	Variation between opposite edges of sheet ≤ 2.6mm/m
ASTM C 1185-08	Tolerance - Straightness (Length)	0.00 mm	0.79 mm	Edge dimensions within 2.6mm/m of length
ASTM C 1185-08	Tolerance - Straightness (Width)	0.00 mm	0.79 mm	Edge dimensions within 2.6mm/m of width
ASTM C 1185-08	Density	2,196.1 kg/m <sup>3</sup>		Reporting Requirement Only
ASTM C 1185-08	Modulus of Elasticity - Equilibrium	25,408.7 MPa		Reporting Requirement Only
ASTM C 1185-08	Modulus of Rupture - Equilibrium	47.5 MPa	≥ 21.9 Mpa	Flexural strength must be ≥ 21.9 Mpa
ASTM C 1185-08	Modulus of Rupture - Wet	42.6 MPa	> 17.9 MPa	Flexural Strength > 17.9 Mpa and > 50% of Equilibrium Flexural Strength
ASTM C 1185-08	Freeze/Thaw - Flexural Strength Retention	97.3 %	≥ 80 %	No visible cracks and ≥ 80% strength retention
ASTM C 1185-08	Heat/Rain Exposure - Rainscreen Assy	No Defects	No Defects	No visible cracks/structural alteration of the sheets and frame assembly
ASTM C 1185-08	Moisture Content	0.9 %		Reporting Requirement Only
ASTM C 1185-08	Moisture Movement	0.00 %		Reporting Requirement Only
ASTM C 1185-08	Water Absorption	3.9 %		Reporting Requirement Only
ASTM C 1185-08	Penetration & Water Droplet Formation	0/0		Moisture penetration permitted, but no droplet formation
FIRE TESTING / SURFACE BURN CHARACTERISTICS		RESULTS (SI)		CERTIFICATION REQUIREMENT DETAILS
ASTM E 84-09	Flame Spread Index	0 (Class A)		Class A: Flame spread 0-25 / ASTM C 1186: Flame spread 0
ASTM E 84-09	Smoke Development Index	5 (Class A)		Class A: Development 0-450 / ASTM C 1186: Development ≤ 5
ASTM E 136-09	Combustibility	Non Combustible (6.9% loss, < 0°C)		Max loss of mass during the test ≤ 50%; Surface and interior temp rise ≤ 30°C above furnace temp; No flaming after first 30 seconds
CAN/ULC S114-05	Combustibility	Non Combustible (6.6% loss, < 0°C)		Max loss of mass during the test ≤ 20%; Temp rise of specimens ≤ 36°C. No flaming of any of the specimens during the last 14.5 minutes
ANCHOR STRENGTH - KEIL UNDERCUT ANCHORS		RESULTS (SI)	RECOMMENDED DESIGN VALUES (SI)	PANEL AND ANCHOR DETAILS
ASTM E 488-10/E 488M-10	Anchor Shear Strength	515 kgf	385 kgf	8.5mm anchors
ASTM E 488-10/E 488M-10	Anchor Tensile Strength (Pullout)	243.8 kgf	180 kgf	8.5mm anchors
ASTM E 488-10/E 488M-10	Anchor Shear Strength	538.4 kgf	400 kgf	10mm anchors
ASTM E 488-10/E 488M-10	Anchor Tensile Strength (Pullout)	313.9 kgf	235 kgf	10mm anchors
ASTM E 488-10/E 488M-10	Anchor Shear Strength	677.4 kgf	505 kgf	11.5mm anchors
ASTM E 488-10/E 488M-10	Anchor Tensile Strength (Pullout)	345.1 kgf	255 kgf	11.5mm anchors
ASTM E 488-10/E 488M-10	Anchor Shear Strength	650.5 kgf	485 kgf	13mm anchors
ASTM E 488-10/E 488M-10	Anchor Tensile Strength (Pullout)	409.6 kgf	305 kgf	13mm anchors
ASTM E 488-10/C 666M-03	Anchor Shear Strength - Freeze/Thaw	117.3 %		8.5mm anchors
ASTM E 488-10/C 666M-03	Anchor Tensile Strength - Freeze/Thaw	111.0 %		8.5mm anchors
ACCELERATED WEATHER TESTING / COLOR CHANGE		RESULTS (SI)		
ASTM G-155-05a/D2244-09a	ColorSeal/T (2000 hrs)	1.69 ΔE		
ASTM G-155-05a/D2244-09a	MicroSeal/T (500 hrs)	0.37 ΔE		