



Project Number: U5263.014.231
January 3, 2024

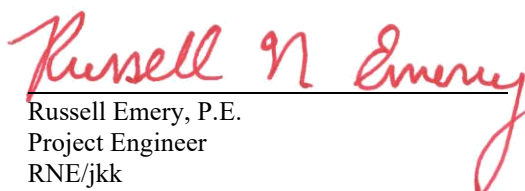
Product Approval Administrator
Building Codes & Standards Section
Department of Business & Professional Regulations
1940 North Monroe Street, Suite 90
Tallahassee, FL 32399-2100

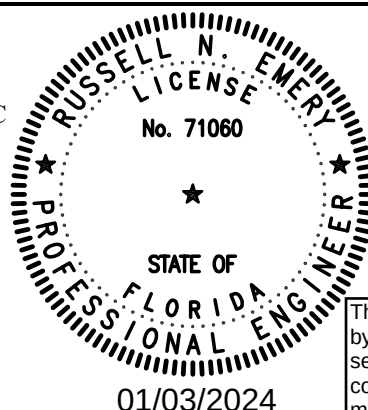
REFERENCE: **Florida Product Approval of ATAS Roof Panel: TechoTile [FL 3162]**
Product Approval Evaluation

Manufacturer: ATAS International, Inc.
Manufacturer Address: 6612 Snowdrift Rd., Allentown, PA 18106
Model Name: ATAS Roof Panel: TechoTile [FL 3162]
Maximum Design Load: See Attached Calculations per Configuration

Testing Summary					
TEST	DESCRIPTION	TEST LOCATION	TEST REPORT DATE	TEST REPORT #	TEST SEALED BY
ANSI 1897	Uplift Resistance for Roof Covering Systems	Architectural Testing Inc.	06/18/2002	01-41396.01	Craig H. Wagner, P.E.
TAS 125-03	Test Protocol for High Velocity Hurricane Zone	Architectural Testing Inc.	07/10/2007	66447.01-109-18	Joseph A. Reed, P.E.
This product complies with the High Velocity Hurricane Zone (HVHZ) testing requirements					
For maximum sizes, spans, loads and anchor types, refer to the installation drawings.					
This product is UL listed in accordance with UL1897 per Architectural Testing Inc. report 01-38776.02					
Referenced test reports were reviewed against the most recent version and have been found to be compliant and having no impact on the performance report.					
To the best of my knowledge, the above product conforms to the requirements of the 2023 Florida Building Code when installed in accordance with the instructions and limitations outlined in the attached installation drawings.					

Sincerely,
VECTOR STRUCTURAL ENGINEERING, LLC


Russell Emery, P.E.
Project Engineer
RNE/jkk



Russell N Emery
2024.01.04
10:09:38-07'00'

Russell N. Emery
No. 71060

This item has been digitally signed and sealed by Russell N. Emery on the date adjacent to the seal. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.



JOB NO.: U5263.014.231

PROJECT: ATAS FBC PRODUCT APPROVAL

PRODUCT: TechoTile

Design Assumptions

5/8" plywood roof sheathing for new construction, 1/2" sheathing for reroofing

24-gauge steel and 0.030" aluminum panel (0.032" specified, 0.030" minimum delivered)

#14-10 x 3 1/2" screws into plywood

Allowable fastener loads from manufacturer test data, Cold-Formed Steel Design Manual 2012, and Aluminum Design Manual 2015 and TAS 125 -03

No stress increase for wind applied

3003-H14 aluminum sheet ($F_y = 17$ ksi, $F_u = 20$ ksi), ASTM A653 SQ Gr. 50 steel sheet ($F_y = 50$ ksi, $F_u = 65$ ksi).

3:12 minimum roof slope

Factor of Safety on panel = 2.0 (FBC 1504.9)

Factor of Safety on fastener = 3.0

Fastener Strengths

Pull-out

#14-10 x 3 1/2" screw

5/8" plywood

Ultimate Pullout (lbs) = 489 (based on manufacturer test data)

F.S. = 3

$$P'_{not}/\Omega = 163 \text{ lbs}$$

#14-10 x 3 1/2" screw

1/2" plywood

Ultimate Pullout (lbs) = 384 (based on manufacturer test data)

F.S. = 3

$$P'_{not}/\Omega = 128 \text{ lbs}$$

Pull-Over -- 24 gage panel

#14-10 screw, 9/16" diameter head/washer

t_1 (in) = 0.0239

F_{tu1} (ksi) = 65

F.S. = 3

d_w (in) = 0.5

$$P_{nov}/\Omega = 388 \text{ lbs}$$

Pull-Over -- 0.030 aluminum panel

#14-10 screw, 9/16" diameter head/washer

C = 0.7

t_1 (in) = 0.03

F_{tu1} (ksi) = 20

F.S. = 3

D_{ws} (in) = 0.5

D_h (in) = 0.212

$$P_{nov}/\Omega = 40 \text{ lbs}$$

Panel Strengths									
Panel	Material	Avg. Screw Spacing (ft)	Test	Report No.	Maximum Pressure (psf)	Row Spacing (ft)	Estimated Panel Failure Load (lbs)	Panel F.S.	P _{allow} (lbs)
Steel	24 gage	1.333	interpolation*	n/a	116	2.333	361	2	180
Alum	0.032 in	1.333	UL 1897	01-41396.01	80	2.333	249	2	124
Alum	0.030 in	0.667	TAS125-03	66447.01-109-18	255	1.167	198	2	99
Alum	0.030 in	1.333	TAS125-03	66447.01-109-18	150	1.167	233	2	117
Alum	0.030 in	1.333	TAS125-03	66447.01-109-18	105	1.167	163	2	82

* Steel deformation load = Aluminum deformation load x $F_{y,Stl} / F_{y,Al} * t_{Stl} / t_{Al}$
= 80 psf x 33 ksi / 17 ksi * 0.0239" / 0.032" = 116 lbs.

TAS 125 Test Results Evaluation (HVHZ)

Per TAS 125, allowable pressure is based on a factor of safety of 2.0. For the two specimens related to field areas, the average ultimate value shall be used to determine the allowable. Further evaluation of individual components (screw pull-out, screw pull-over, panel, etc.) is not required.

TAS 125 average ultimate for field areas = 128 psf
Allowable pressure for field areas = 64 psf

TAS 125 ultimate for perimeter areas = 255 psf
Allowable pressure for perimeter areas = 127.5 psf

Allowable Wind Pressure Based on Fastener Layout

5/8" Plywood						
Panel	Controlling Strength (lbs)	Avg. Screw Spacing (ft)	Field		Perimeter	
			Row Spacing (ft)	Allowable Pressure (psf)	Row Spacing (ft)	Allowable Pressure (psf)
Steel	163	1.111	2.333	62.9	1.167	125.7
Steel	163	1.667	2.333	41.9	1.167	83.8
Aluminum	40	0.667	1.167	51.4	1.167	51.4

For steel panels screw pull-out controls. For aluminum panels screw pull-over controls.

1/2" Plywood							
Panel	Controlling Strength (lbs)	Avg. Screw Spacing (ft)	Field		Perimeter		
			Row Spacing (ft)	Allowable Pressure (psf)	Row Spacing (ft)	Allowable Pressure (psf)	
Steel	128	1.111	2.333	49.4	1.167	98.7	Pattern A
Steel	128	1.667	2.333	32.9	1.167	65.8	Pattern B
Aluminum	40	0.667	1.167	51.4	1.167	51.4	Pattern C

For steel panels screw pull-out controls. For aluminum panels screw pull-over controls.

Allowable Uplift Pressures

Panel System Description

The allowable uplift pressure is the smaller of panel strength and fastener strength for Patterns A, B, and C.

The allowable pressure based on TAS 125 test results is based on a global safety factor of 2.0 per TAS and FBC provisions.

Pattern	Material	Sheathing (in)	Valley/Crown	Screw	Row Spacing (in)	Avg. Screw Spacing (in)	Allowable Uplift (psf)	
A Field	steel	5/8	Crown	#14-10	28	13.333	63	Non-HVHZ only
A Perim.	steel	5/8	Crown	#14-10	14	13.333	126	
A Field	steel	1/2	Crown	#14-10	28	13.333	49	
A Perim.	steel	1/2	Crown	#14-10	14	13.333	99	
B Field	steel	5/8	Crown	#14-10	28	20	42	
B Perim.	steel	5/8	Crown	#14-10	14	20	84	
B Field	steel	1/2	Crown	#14-10	28	20	33	
B Perim.	steel	1/2	Crown	#14-10	14	20	66	
C Field	aluminum	1/2, 5/8	Crown	#14-10	14	8	51	HVHZ & Non-HVHZ
C Perim.	aluminum	1/2, 5/8	Crown	#14-10	14	8	51	
TAS Field	aluminum	1/2, 5/8	Valley	#14-10	14	16	64	
TAS Perim.	aluminum	1/2, 5/8	Valley	#14-10	14	8	127	

Test Report References

Standard	Report Number	Laboratory	Laboratory Location
UL 1897-98	01-41396.01	Architectural Testing	York, PA
TAS 125-03	66447.01-109-18	Architectural Testing	York, PA