

Exceeding the limits by passing not just one, not just two, but all three approval tests:

- **TAS-201: Large Missile Impact Test** - determines sufficient resistance to windborne debris as determined by Code(c) for maintaining the envelope of the building. Test employs an 8(a) foot Southern Pine 2" x 4" beam, weighing 9(a) pounds; shot from an air cannon at (50 ft/ sec) with resulting damage not to exceed specified tolerances allowed by Code(b).
- **TAS-202: Uniform Static Air Pressure Test** - determines sufficient resistance to wind forces as determined by Code(c) for maintaining the envelope of the building. Test employs a sealed pressure envelope both inside and outside of the test product (allowing for both positive and negative static pressure tests) to determine if the product provides sufficient resistance to wind forces as required by Code (c).
- **TAS-203: Cyclic Wind Pressure Test** - determines sufficient resistance to fatigue failure due to repeated exposure to wind pressure as required by Code(c). Test employs a sealed pressure envelope to repeatedly apply (671 cycles) positive and negative static pressure forces, lasting 1 to 3 seconds each, on the product surface following completion of the missile impact test.

(a) Indicates an approximate value based on a range allowed by specified test standards.

(b) Refers to Section 1626.2.8 of the Florida Building Code, Building.

(c) Refers to Section 1620 of the Florida Building Code, Building.

All tests as described above are performed in the progressive manner of TAS-202, TAS-201, then TAS-203 on the same piece of equipment.

Miami-Dade County Product Control And Florida Building Commission Approved Products							
Style	Products	Approved Sizes	TAS-201	TAS-202	TAS-203	NOA Number / Expiration Date*	Florida Product Approval
EXHAUST	ACEB	60-300	PASSED	PASSED	PASSED	08-0424.03 / 10-2-2013	FL11693
	ACED	70-180	PASSED	PASSED	PASSED		
	ACRUB, ACRUB-HP, ACRUB-XP	100-300	PASSED	PASSED	PASSED	08-0902.01 / 11-13-2013	FL11695
	ACSC, ACSC-HP, ACSC-XP	100-300	PASSED	PASSED	PASSED		
	ACRUD, ACRUD-HP, ACRUD-XP	70-195	PASSED	PASSED	PASSED		
	VCRD, VCRD-HP, VCRD-XP	100-195	PASSED	PASSED	PASSED		
	VCR, VCR-HP, VCR-XP	100-300	PASSED	PASSED	PASSED		
	SRSH-B	60-270	PASSED	PASSED	PASSED	08-0314.05 / 9-4-2013	FL11691
	SRSH-D	60-180	PASSED	PASSED	PASSED		
	CPS** / CPS-A** / CPV**	60-245	PASSED	PASSED	PASSED	08-0424.02 / 10-2-2013	FL11692
	TLCH-B	100-365	PASSED	PASSED	PASSED	09-0423.06 / 4-22-2014	FL3287.1
	TLCH-D	70-180	PASSED	PASSED	PASSED		
SUPPLY	ASP	90-200	PASSED	PASSED	PASSED	08-0904.04 / 11-13-2013	FL11696
	ASPTH	90-200	PASSED	PASSED	PASSED	09-0423.06 / 4-22-2014	FL3287.1
GRAVITY	GR	12x12 - 36x36	PASSED	PASSED	PASSED	08-0908.17 / 11-13-2013	FL11697
	TREH	24x24 - 48x48	PASSED	PASSED	PASSED	09-0423.06 / 4-22-2014	FL3287.1

*NOA Number / Expiration Date issued by Miami-Dade County, Florida Building Code Compliance Office, Product Control Division

**Tested with Inlet Box and Curb Cap
Texas Department of Insurance Product Evaluation Pending



LOREN COOK COMPANY

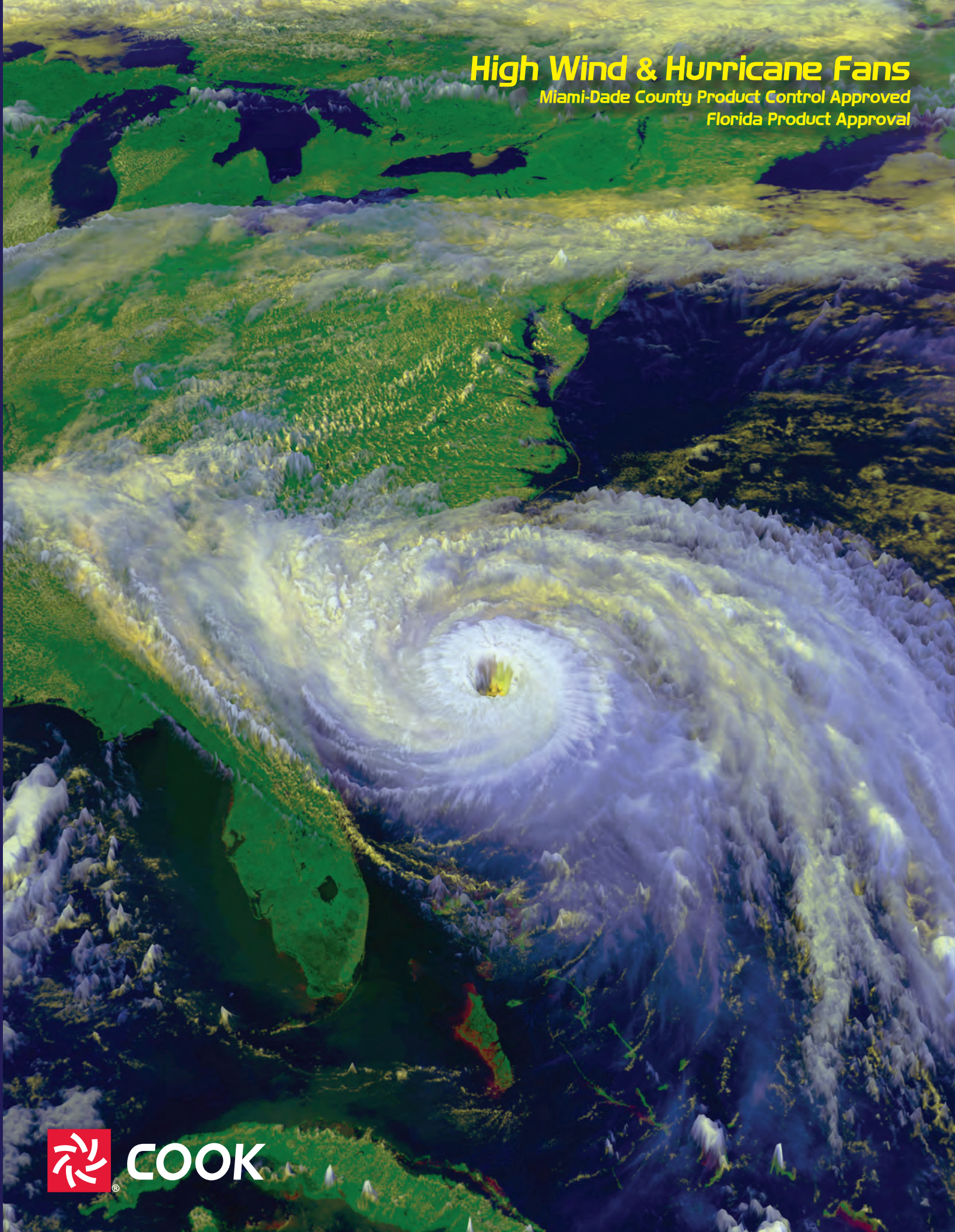
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SPRINGFIELD, MO 65803-4637
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COOK



MIAMI-DADE COUNTY
APPROVED

High Wind & Hurricane Fans

Miami-Dade County Product Control And Florida Building Commission Approved Products

ACE

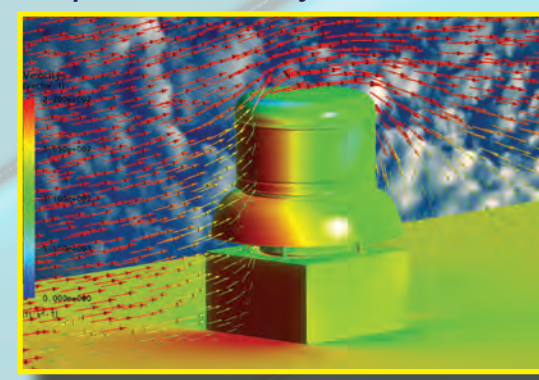


LOREN COOK COMPANY'S "Hurricane Rated Construction" option was developed for the demands of high wind and coastal areas. Through rigorous research and testing, this construction option was developed to meet the demands of Miami-Dade County's Testing Application Standards (TAS) 201, 202 and 203. Every Loren Cook product listed in this brochure has passed all three of the TAS testing protocols. In addition, all of these products have received approval from the Florida Building Commission. The last page of this brochure lists the appropriate NOA number and Florida Product Approval number for each product.

The hurricane rated construction option was engineered so that the fans have the same physical size as the standard construction units. In addition, the fan's air and sound performance, as shown in the product catalogs and **Compute A Fan®** selection software, remains identical to the standard construction products.

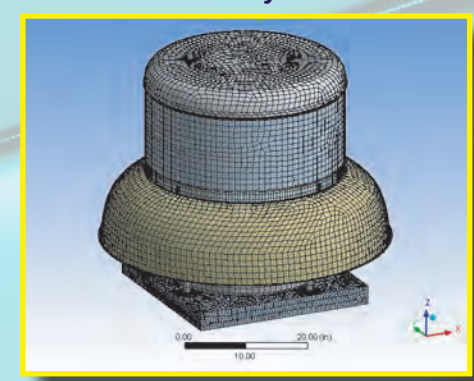
Approved attachment details are included in the Notice of Acceptance documents on the Miami-Dade County Florida website (miamidade.gov) and the Florida Building Commission website (floridabuilding.org). These details are also available in Loren Cook Company's Installation, Operation and Maintenance manual "Hurricane Rated Construction" Supplement. The approved attachment details do not require the use of external tie downs to the roof. Installation of the fans to an approved roof curb must be in accordance with these details to meet the Miami-Dade County and Florida Building Commission approvals.

Computational Fluid Dynamics

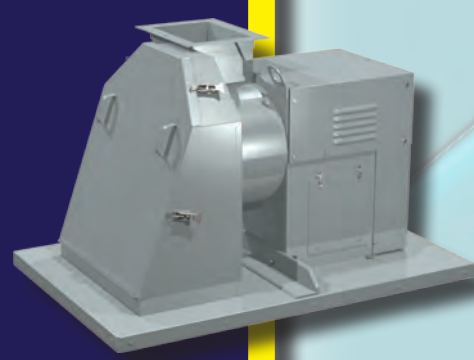


In the early stages of development, products were modeled with Computational Fluid Dynamics (CFD) to determine the stress points as air flowed around the fans at speeds of 150 MPH. Next, Finite Element Analysis (FEA) was utilized to model and evaluate stress plots. Finally, the proper material gauges and hardware were determined so the fans would survive these high wind loads.

Finite Element Analysis



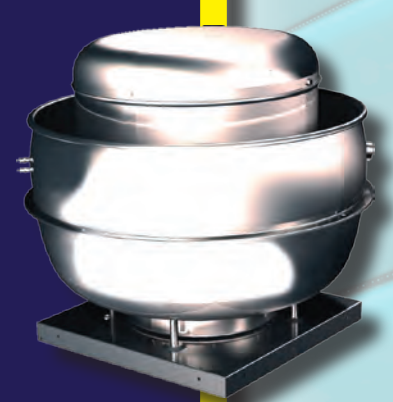
CPS / CPS-A / CPV



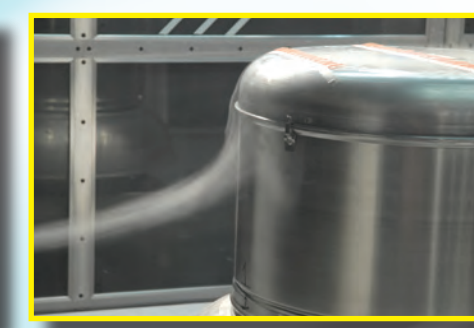
SRSH



ACRU / ACSC / VCR



Full Scale Wind Tunnel Testing



In the next step of testing, products were placed in an aerodynamic wind tunnel. They were tested to a 150 MPH sustained wind to determine the product's resistance to wind load.

Missile Impact Testing



Pressure Testing



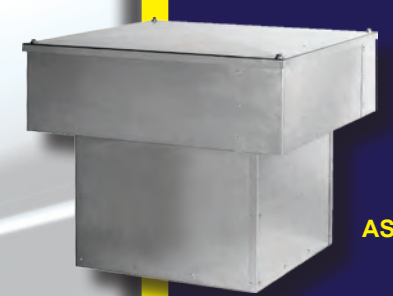
Finally, the products were subjected to the Miami-Dade County test procedures for Uniform Static Air Pressure Testing (TAS-202), Large Missile Impact Testing (TAS-201) and Cyclic Wind Pressure Testing (TAS-203) in this progressive manner. Shown in the photographs above are the actual impact tests for evaluating the products to provide sufficient resistance to wind borne debris as required by the Florida Building Code, Section 1626. The TAS 202 pressure testing is shown in the photograph to the left. This test method provides a procedure for determining compliance with the Florida Building Code, Section 1620 and Section 1625, which requires that the products provide external protection to maintain the overall building envelope. All TAS-201, 202 and 203 test procedures were performed in an accredited independent laboratory.

The Results:

LOREN COOK COMPANY now offers the most complete line of Miami-Dade County Product Control Approved and Florida Product Approved products in the ventilation industry. If your project requires roof mounted exhaust fans, supply fans or gravity ventilators, you can count on Cook for your application. Contact your Loren Cook representative for assistance.



TLCH / ASPTH / TREH



ASP



GR