

June 30, 1942

FULL-SCALE WIND TUNNEL

Use: For investigation of aerodynamic characteristics and behavior of full-size airplanes.

Authority: 70th Congress, Public No. 778; approved February 20, 1929.

Location: Plot 22, Langley Field, Va.; approved by Secretary of War July 24, 1929.

History: Preliminary work on full-scale wind tunnel started April 27, 1929.  
Full-scale wind tunnel placed in operation May 27, 1931.

Construction:

	<u>Main Building</u>	<u>Hangar Extension</u>	<u>Total</u>
Dimensions of building	435' x 222' x 82' (av. height)	74' x 62' x 28' (av. height)	
Ground area occupied	104,000 sq ft	4,700 sq ft	108,700 sq ft
Ground floor area	96,500 sq ft	4,500 sq ft	101,000 sq ft
Cubic contents	7,900,000 cu ft	128,000 cu ft	8,028,000 cu ft
Character	Steel structure - Careystone covering		
Type and thickness of walls	Corrugated Careystone - 5/16 in. thick		
Type and thickness of floor	Concrete - 5 in. thick		
Type of roof	Corrugated Careystone		

Cost Summary

Cost of full-scale wind tunnel building	\$958,932.03
Cost per cu ft	0.119
Cost of full-scale wind tunnel equipment	157,684.57

June 30, 1942

FULL-SCALE WIND TUNNEL -

Detailed Costs

Structure

Preliminary studies; design; model tunnel; clearing and grading site; inspection and other personal service, etc.	\$	67,758.95	
Construction, including hangar annex		473,032.48	
Electrical equipment; 2 G.E. 4,000 hp motors; 2 propeller fans, each consisting of 4 blades 35' 5" in diameter; lighting system, etc.		178,858.68	
Mechanical equipment, balance, survey apparatus, etc.		132,479.83	
Heating and plumbing systems, etc.		<u>19,626.45</u>	\$ 871,756.39
Technical and engineering services (10 o/o of structure and tunnel costs - \$871,756.39)			<u>87,175.64</u>
			958,932.03
24" Smoke Tunnel <sup>ovt</sup>		8,770.32 <sup>?</sup>	
Inventoried mechanical equipment <sup>9</sup>		40,556.77	
Inventoried instruments <sup>o o 1</sup>		4,385.32	
Inventoried furniture <sup>o o 1</sup>		8,892.57	
Inventoried electrical equipment		11,709.12	
Inventoried fire-fighting equipment		550.00	
Models for research use (estimated and inventory cost of those currently on hand)		63,537.56	
Additional services and equipment charged to P.J.O. 92 - Full-Scale Wind Tunnel - Equipment and Alteration		<u>19,282.91</u>	<u>157,684.57</u>
Total to June 30, 1942			\$1,116,616.60

June 30, 1942

FULL-SCALE WIND TUNNEL

Main Contractors

Structure: Contract NAW-80, dated February 12, 1930, J. A. Jones Construction Co., Charlotte, N. C. Started March 8, 1930; completed December 19, 1930 -	\$400,458.46
Electric equipment: Contract NAW-83, dated May 5, 1930, General Electric Co., Schenectady, N. Y. Started June 23, 1930; completed February 24, 1931 -	\$145,239.00
Balance scale assembly: Contract NAW-118, dated November 19, 1930, Toledo Scale Co., Toledo, Ohio. Started November 29, 1930; completed April 3, 1931 -	\$16,700.00
Hangar extension: Contract NAW-149, dated June 17, 1931, Southeastern Construction Co., Charlotte, N. C. Started June 29, 1931; completed September 17, 1931 -	\$10,077.50
Modifications to balance: Order No. 1552, dated February 15, 1938, Norfolk Navy Yard, Portsmouth, Va. Completed March 9, 1939 -	\$29,702.07

June 30, 1939  
1940

FULL-SCALE WIND TUNNEL

Use of structure - for investigation of aerodynamic characteristics and behavior of full-sized airplanes.

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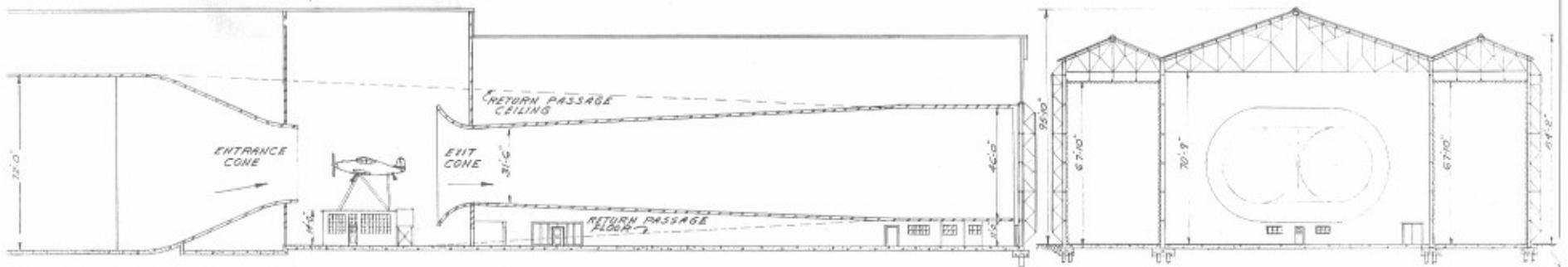
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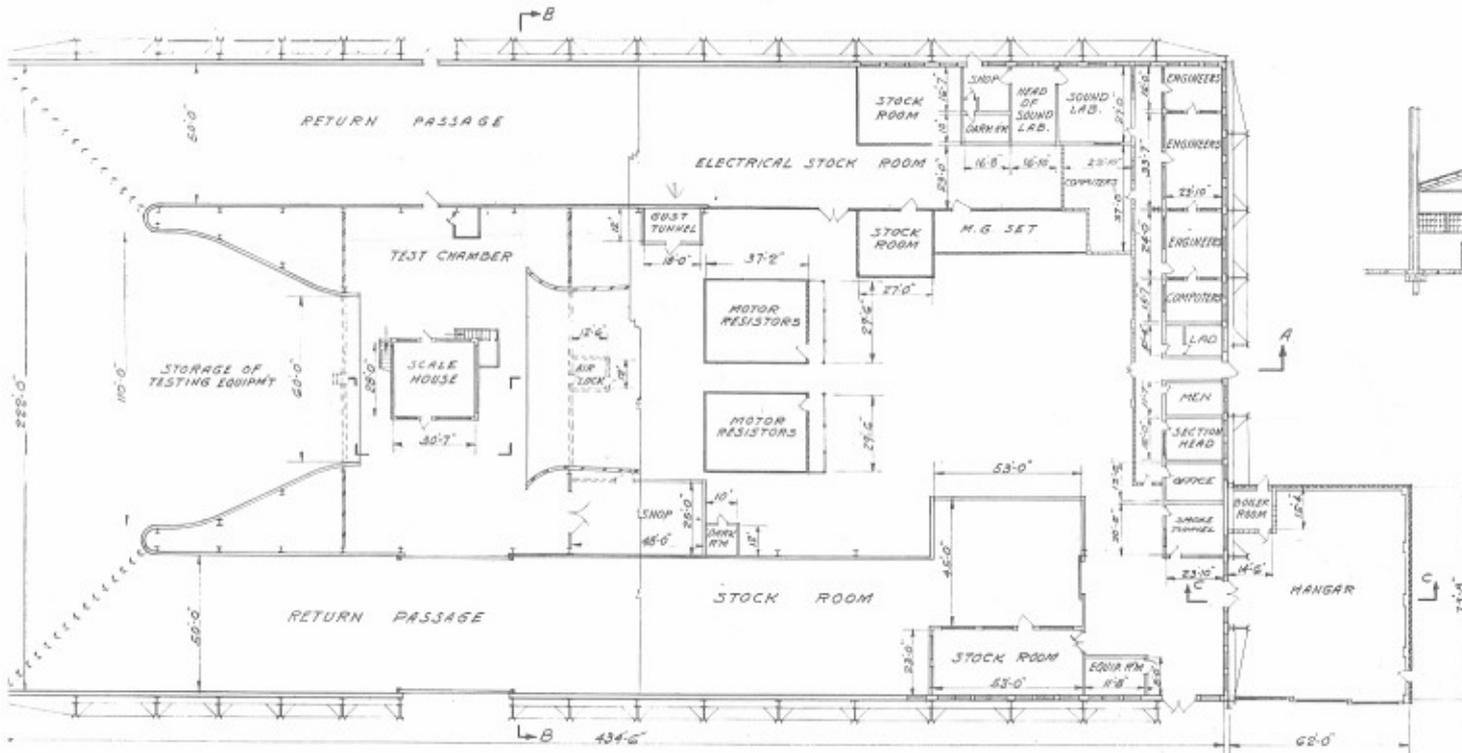
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Type of roof -	Corrugated Careystone		





SECTION A-A

SECTION B-B



FLOOR PLAN



SECTION C-C

CUBAGE  
8,245,192 C.F.



SCALE 1"=20'-0"

REVISIONS	

**FULL SCALE WIND TUNNEL**  
 NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS  
 RESEARCH LABORATORY - LANGLEY FIELD, VA.  
 DATE: 8-24-50