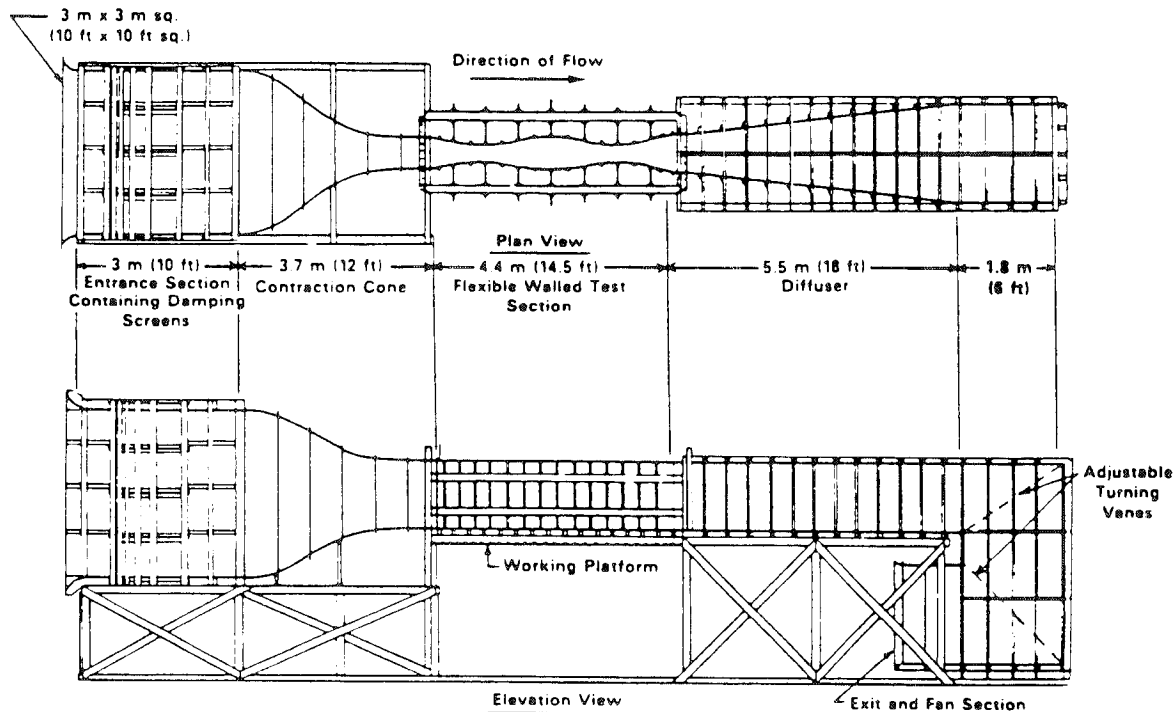


INTERNATIONAL TOWING TANK CONFERENCE CATALOGUE OF FACILITIES
 AIR TESTS FACILITIES

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LOW TURBULENCE WIND TUNNEL (1953)



DESCRIPTION OF FACILITY: Vertical plane, open circuit, continuous flow, low turbulence subsonic wind tunnel constructed primarily of wood; low turbulence characteristics are achieved by drawing air through a series of damping screens, a settling chamber, & a rectangular cross section contraction cone upstream of the test section and diffuser; the fan is located downstream of the test section and discharges into the large open space beneath the tunnel; the vertical sidewalls of the test section are constructed from flexible stainless steel and can be adjusted to vary the cross sectional area longitudinally; the top of the test section contains transparent lighting panels & can be removed for easy access to models or instrumentation; a large number of pressure taps are located along the test section to accommodate Pitot tubes or traversing rods.

TYPE OF DRIVE SYSTEM: Adjustable pitch vane axial fan, direct driven with a 150 hp AC induction motor powered by a 460 volt AC, 3-phase, variable frequency speed controller.

TOTAL PROPELLER MOTOR POWER: 112 kW (150 hp), 1800 rpm at 60 hz

WORKING SECTION MAX. VELOCITY: 46 m/s (150 ft/s, 89 knots) with a 0.7 sq. m (8 sq. ft) cross sectional area normal to the flow.

WORKING SECTION DIMENSIONS: Length = 4.4 m (14.5 ft), height = 1.2 m (4 ft), width = 0.6 m (2 ft); the width can be varied ± 178 mm (7 in.) by adjustment of the flexible vertical walls to yield a range of cross sectional area from 0.3 to 1.2 sq. m (3.3 to 12.7 sq. ft).

INSTRUMENTATION: Pitot tubes, hot wire anemometers, manometers, pressure transducers, automatic pressure scanning system, minicomputer for data collection & on-line analysis.

TESTS PERFORMED:

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|---------------------------------------|----------------------------------|
| (1) wake studies | (4) boundary layer experiments |
| (2) flow visualization experiments | (5) cavity resonance experiments |
| (3) frictional resistance experiments | (6) flow separation experiments |

PUBLISHED DESCRIPTION:

• Scotton, V.E. & Shaffer, D.A., "The Low-Turbulence Wind Tunnel," DTMB Hydromechanics Laboratory Research & Development Report 2116 (Dec 1965)