IAN HOWLETT MRINA FRENG
YACHT DESIGNS
MARINE CONSULTANCY
MOBILE 07971 816 761

108 BOTLEY ROAD
OXFORD
ENGLAND OX2 OHH
tel/fax **01865 724958**
e-mail IANHOWLETTYACHTDESIGN@yahoo.co.uk

To Whom it may Concern …

A Technical Note

On

The Extra Resistance/Drag of Clinker Construction with particular reference to the YW Dayboat Class of Sailing Dinghy

One of the prime contributors to the resistance of a sailing boat, is the drag due to skin friction as a result of its movement through the water.

From simple considerations, the total resistance of a YW Dayboat when sailing to windward, when fully 'powered up', might be expected to be some 13kgs. Of this total, on a smooth skinned boat it might be predicted that the skin friction drag of the canoe body would be some 4.4kg.

A quick estimate of the additional wetted surface **area** of the clinker hull suggests that such would be some **8%** greater than that of the smooth skinned boat. However the extra **drag** of such would be predicted (via a 'Rule of Thumb Rule' employed in towing tanks for appendages) to be twice that, ie some **16%** of the skin friction resistance of the hull.

When sailing, and in particular upwind and when making leeway, the flow will be forced to cross the plank land edges – so the 16% above may be an underestimate.

Taking however the value as 16%, the additional skin friction resistance might be expected to be just over **5%** of the total upwind resistance…which will inevitably bring about a noticeable reduction in sailing performance.

Considerations of the difference in performance of smooth skinned and clinker YWDBs evidently go back over many decades. The Historical Notes on the Class Association Website (YWDB_history-002) make clear reference to such.

Ian Howlett

Oxford
August 2018