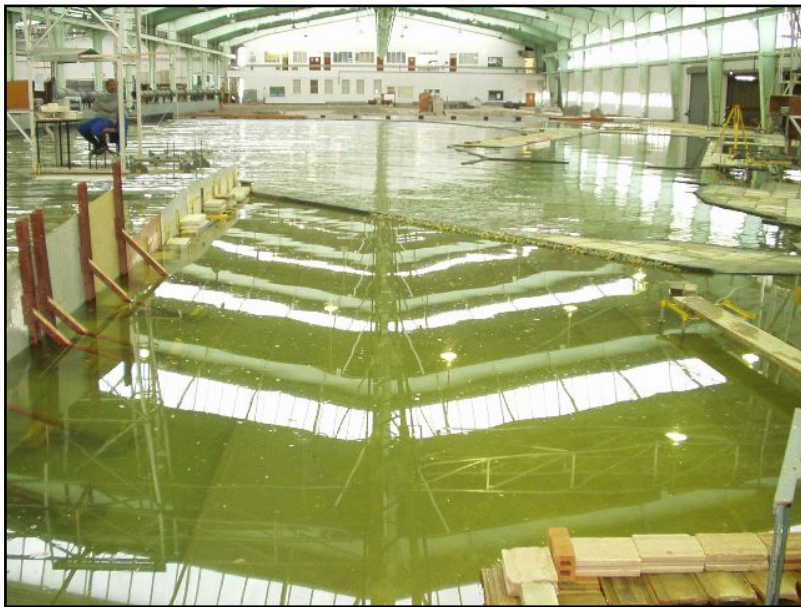


3D WAVE/CURRENT BASIN- 55m x 30m x 500mm

DESCRIPTION

The 3D wave and current basin is generally used for breakwater stability testing, wave penetration tests and ship motion studies. Current flows can be set up in the model basin by means of manually operated system of pumps and weirs. Tides can also be simulated.



The model is serviced by two overhead gantry bridges for ease of mobility around the test area during testing and for the measurement of the required wave parameters.

SPECIFICATIONS

Length: 55.0m
Existing Test Width: 30.0m
Max. Water Depth: 1.00m

The wave makers can generate waves of 20cm high at periods of between 1.0s to 2.0s. Both regular and irregular waves can be generated.

The wave generation system is designed for ease of mobility in and around the test basin. Thus wave directions can varied in greater amounts than the -15° to

$+15^\circ$ that is allowed for in the wave signal generation software.

Peak factors for various energy spectrums can be selected in the wave software program, as can the frequency limits, length of the wave series, number of waves in a series and the phase limits.

Wave height is controlled by

means of a voltage regulator, which is regulated manually with a PC. Wave heights and periods are measured through twin wire resistance probes.

There is no mechanism of reflection compensation fitted on the wave makers. Reflection is separated from the incident wave field after testing using the method of Mansard and Funk (1980).

The wave signal, wave reflection and wave analysis software has all been developed in house.

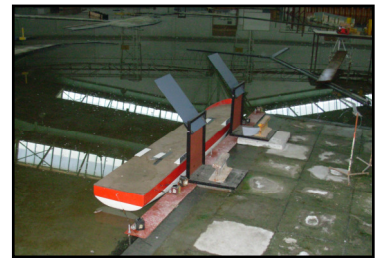
A 1:10 slope in front of the wave makers is required for correct transformation of the incoming wave spectrum. Bathymetry can be built to suit from a sand/cement mixture if required.

PREVIOUS STUDIES

Previous model studied in the wide 2D flume include:

- *Port of Cape Town Breakwater Rehabilitation:*

Analysis of breakwater and toe stability, Overtopping Analysis, Ship Motion Studies.



- *Malongo Dock Expansion, Angola:*

The effects of new layout on wave penetration and moored ship motions were tested.



- *Cape Town Long Wave Studies:*

Final Year students from University of Stellenbosch, South Africa, conducted research into long wave penetration and their effects on ship motions.

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