

Equipment and products used for JURL

ADAPT-ABI : A versatile bridge design software

ADAPT-ABI has been specifically developed for the analysis and design of segmentally constructed bridges, such as balanced cantilever construction. It has been serving the bridge engineers in over

and variation in temperature. Its powerful graphical interface can display moments, shears, stresses and deformations for various stages of construction. The software can handle nonprestressed concrete, precast, cast-in-

place, pre-tensioned or post-tensioned frames and is specifically suited for the design and analysis of balanced cantilever construction, incrementally launched bridges, span-by-span construction, and other segmentally built bridges. Other applications include retrofit of concrete frames where new concrete is added, new members are added or existing members are modified; and demolition (reverse construction) of frames. The software also handles composite construction and cable-stayed bridges.

The basic module of the software — ADAPT-ABI Basic — is self-contained and complete. There are other modules which enhance the capabilities of the basic program which are given below.

ADAPT-Gen module

ADAPT-Gen module of the program enables the user to:

- (i) break the structure into spans and columns
- (ii) display and tabulate the solution in a span-and-column format
- (iii) include automatic pattern loading,
- (iv) combine different loading conditions and compile envelopes of load cases.

Other features are directed toward making the software an effective production tool.

ADAPT-Moving load module

The moving load module is developed primarily for bridge construction. Using the software's library of the most common truck or train loads, or a user-defined library, the program automatically moves the loading along a user-defined path and generates an envelope of sectional actions for combination with other loading. The moving load module of ABI is general and comprehensive. It is designed to cover all foreseeable conditions in bridge design.

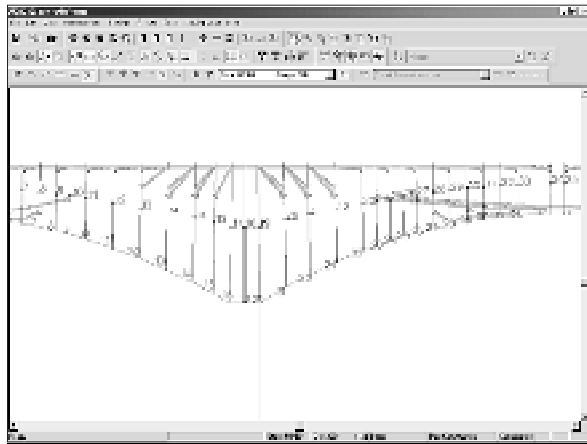
ADAPT-Elongation module

At the completion of an ADAPT-ABI computer run, and without any additional input data, this module calculates the elongation of each of the tendons at stressing and the associated stress losses. The stress losses include the effects of friction, and the time-dependent parameters of creep, shrinkage and relaxation in prestressing.

The bridge design software ADAPT-ABI was used by Tandon Consultants, New Delhi, for the design of the balanced cantilever bridges on Jammu Udhampur rail link.

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Screen shot of the ADAPT-ABI bridge design software

sixty countries across the globe. ADAPT-ABI has been used in design of many notable bridges worldwide.

ADAPT-ABI is a finite element program which is tailored to perform time-dependent analysis of concrete bridges and frames, during the construction phase and after the structure is complete. ABI can investigate the effects of newly placed concrete, creep, shrinkage, relaxation in prestressing over time, aging of concrete,

Some of the main equipment and products used in the JURL project have been presented here. Items reported in this feature are based on information supplied by manufacturers and developers. The description of these items do not represent endorsement by this Journal or by The Associated Cement Cos. Ltd.