



**US Army Corps
of Engineers®**

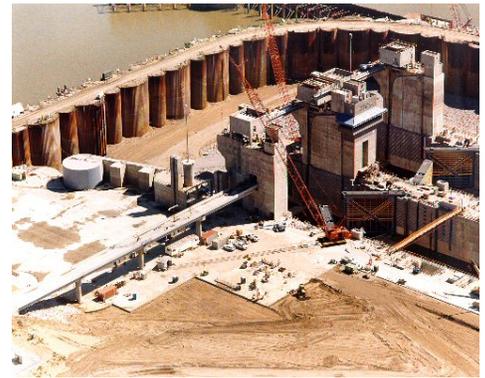
Engineer Research and
Development Center

Computer-Aided Structural Engineering (CASE)

Description

The U.S. Army Corps of Engineers (USACE) is responsible for designing and maintaining a large number of navigation and flood-control structures. The Computer-Aided Structural Engineering (CASE) project was initiated to perform research and development (R&D) associated with development of computer-aided design/analysis tools for use in the design and analysis of these hydraulic structures. The goals of the CASE project include:

- Better design/analysis of Corps structures.
- Reduction in time required for design/analysis of Corps structures.
- Elimination of duplication of program development efforts.
- Organized and cost-effective approach for development of computer programs based on design engineer input.
- Professional engineering analysis and programming.
- Good documentation.



Olmsted Lock and Dam

Capabilities

CASE includes both civil works and military programs and is jointly managed by Headquarters, U.S. Army Corps of Engineers (HQUSACE), and the ERDC Information Technology Laboratory (ITL), with input from field offices. CASE methodology is based on a number of concepts, including: recognizing that Corps engineers have extensive knowledge in solving problems associated with hydraulic structures, that everyone can contribute in the area of his/her expertise, and that those who will ultimately use the computer programs should play a major role in designing them.

The total CASE package includes criteria development by a task group, survey of available programs, development of new program documentation, review by task groups, field testing of programs, training courses on program use, publication of reports, and Corps-wide release, support, and maintenance.

An essential element of the project is the ongoing collaboration among HQUSACE, ITL, and field engineers during development of the computer programs. This procedure ensures that the programs meet the needs of the end-users.

Supporting Technology Products

For information about obtaining copies of the following and other CASE programs, please go to the CASE Web site at <http://case.wes.army.mil/> or email case@erdc.usace.army.mil.

Benefits

Benefits derived from the CASE project include:

- Optimum use of engineer's resources.

- Improved communications between structural engineers and managers.
- Optimally coordinated work between the Corps field offices, HQUSACE, and Corps laboratories.
- Involvement of grass root levels in the identification and solution of problems.
- More impetus on long-range planning in the structural area.
- More analyses with resulting benefits of better design.
- Optimal design of structures with resultant cost savings.
- Closer coordination with other disciplines.
- Identification of soft spots in design criteria.
- More trained engineers in the design of hydraulic structures.
- Spin-off R&D products.

Success Stories

Application of Case technology has benefited a number of large civil works projects. All Corps offices have used at least one CASE program, and CASE programs have been used over 500,000 since FY80.

Point of Contact

For additional information, contact case@erdc.usace.army.mil.