

CHAPTER 12

Consulting Engineers*

1. NATURE AND FUNCTIONS OF CONSULTING ENGINEERS

The consulting engineer is an individual or group of professional engineers who offer professional services in specialized engineering fields. The consulting engineer offers independent opinions and solutions to problems based on training and experience. The consulting engineer is available for engagement on engineering matters just as a medical doctor or an attorney is available in their respective fields.

Consulting engineers offer a wide variety of services, including preliminary reconnaissance and appraisal, planning and feasibility studies, engineering design, plans and specifications, construction coordination, supervision of operation, and consultation on special programs. These services are available under a wide variety of contractual agreements from qualified consultants.

A. SCOPE OF DUTIES, SERVICES RENDERED

(1) *Preliminary reconnaissance and appraisal.*—The consulting engineer provides independent and expert analysis of specific problems both for preliminary and for more detailed feasibility surveys to develop a definite course of action. The preliminary engineer report to the client may include estimates of construction costs, descriptions and sketches of various plans contemplated, and a review of the site. This phase is important to the client to assist in reaching a decision, but does not include broad comparisons or investigations.

(2) *Planning and feasibility studies.*—The consulting engineer's studies determine possible solutions to the engineering problems and the most economical solutions in terms of both short- and long-range planning as the needs of a situation require. The various engineering solutions available to the client are developed after careful analysis of the present and future needs, detailed costs and benefits, and financial capability of the client. The choices of possible solutions are explained to the client and a recommendation of the best choice is made based upon all relevant factors. Estimates for economical comparisons in these studies, including operating costs, overhead, financing consideration and rates, or expected revenue, may require extensive analysis of historical data and the projection of statistical estimates for future years. Long-range planning, functional studies, and analyses to determine the possibilities of future development are important parts of this phase of the consulting engineer's service.

(3) *Engineering design.*—Preparation of design plans and specifications involves the translation of brief outlines and sketches into

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