

Practice of Structural Engineering

The practice of structural engineering involves identifying possible loading patterns, conceptualizing candidate structural systems, developing idealized physical models, applying the possible loading patterns to these idealized models, using analysis methods to determine the peak values of the response variables needed for design detailing, and selecting the design details using an appropriate design code. In this section, we focus on selecting loading patterns, idealizing three-dimensional frame structures, and establishing the peak values of the response variables needed for design detailing. Computer-based analysis is used extensively for this phase.

Multi-span horizontal structures are discussed in the next chapter. The topics range from girder bridges to arch bridges to cable-stayed bridges. The following chapter presents a strategy for modeling three-dimensional low-rise rigid frame structures subjected to varying loads. Then, the succeeding chapter describes in detail the process followed to establish the critical loading patterns for multistory frames. Finally, the last chapter covers the inelastic response of structures.