Leading Work for Establishment, Spread, and Advancement in Performance-Based Fire Safety Design by Way of Creative Practice into Real Architectures

YOSHIDA Yoshiyuki,
Former Design Management Department, Takenaka Corporation

In the early 1970's when many fatal accidents caused by fires in buildings began attracting attention, Yoshida started research as an architect. Focusing on the life-safety from the buildings in fire, a simple graphical solution method for the prediction of exit time was developed, afterwards that became one of the principal techniques in the performance-based design. In 1982, a large complex building was designed safely adopting the creative ideas. The safety of the building was verified by engineering way, and success of it widely demonstrated the usefulness of performance-based design.

Since then, many rational/evolutional buildings by Takenaka Corp. were realized by applying Yoshida's theories and technologies; for example, National Opera Theater, many high-rise buildings, several department stores, Japanese Great Five Domed Stadiums, a big stadium in Kaohsiung in Taiwan. If architects of these buildings had followed conventional law that provides nothing but specifications, those buildings would have not come true. In finding solutions, problems were discussed in a sincere manner where the easy ways were eliminated. Technologies developed through above projects became popular today.

Many fruit of these researches and developments were published on papers, books, and journals, and became precious guidelines for students, experts, and architects. Activities of spread and education worked as a driving force for growth of performance-based design in Japan.