

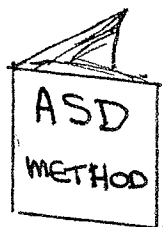
PRECASTERS NOTEBOOK

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Problem: WE HAVE DISCUSSED ENGINEERING METHODS USING "ALLOWABLE STRESS DESIGN" (ASD) AND "LOAD FACTOR DESIGN" (LFD). ARE THERE ANY OTHER METHODS AVAILABLE?

Yes, the newest method for design of concrete structures is termed "Load Resistance Factor Design" (LRFD).



AVAILABLE 1940's



1960's



1990's

Problem: IS THERE AN ADVANTAGE TO USING LRFD WHEN COMPARED TO USING ASD OR LFD DESIGN METHODS?

The intent of the LRFD method is not to change the end result of the previously used methods but to address more of the variables in the behavior of structural elements. Research is constantly shedding new light on performance of materials used in construction. The "load factor" and "resistance factor" coefficients will provide a means to make adjustments for different conditions and for results of new research.

Problem: DOES IT MEAN THAT ALL OF THE PROJECTS USING ASD OR LFD DESIGN METHODS WILL FAIL?

No, the projects in the past were made using materials of that era. The design methods used at that time were based on those materials (e.g. concrete compressive strengths of 4,000-5,000 psi or less and reinforcing steel with yield point of 40,000 psi and 60,000 psi). Even today, ASD & LFD methods can provide a good design when using 4000-5000 psi concrete and Grade 40 or 60 reinforcing steel.