ARCH 614. Study Guide for Quiz 8

This guide is not providing “answers” for the conceptual questions. It is a list of topical concepts and their application you should be familiar with. It is an aid to help prepare for the quiz.

Covers material of Lectures 16 & 17

- Design methodologies
- Steel grades (standard properties)
- Yield strength vs. ultimate strength
- Local buckling in web & flange
- Bearing on flange
- Plastic section modulus
- Plastic moment & plastic hinges
- Braced vs. unbraced length
- W (first number meaning) x (second number meaning)
- Area of web
- Load tracing & tributary width (vs. area)
- Self-weight
- Neutral axis, section modulus, Q, extreme fiber
- Use of Beam Diagrams and Formulas
- Deflections & superpositioning (+ units)
- Lateral buckling (and bracing)
- Allowable Stress Design
- Load and Resistance Factor Design
- Unified Design Method
- Factored loads
- Resistance Factors
- “Design” values vs. “Capacity”
- Factor of Safety
- Load types (and directions) (like D, L, S ...)
- Load combinations
- Minimum Design Loads & Requirements
- Serviceability and limits
- Economical selection by Z charts
- Design vs. analysis
- Use of beam moment capacity charts
- Equivalent distributed load based on a maximum moment
- Use of Load Tables
- Joist vs. beam vs. girder
- Plate girder
- Web stiffener plates
- Decking (composite vs. non)
- Open web joist
- Gusset plate
- Method of Sections
- “Best” location for summation of moment
- Truss configurations and assumptions for analysis
- Zero-force member
- Special truss member configurations at joints and conditions
- Compound truss
- Diagonal tension counters and solution method