

ARCH 614. Study Guide for Quiz 6

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, 18, 19 & 20

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

- Throat thickness
- Fillet, butt, plug, slot
- Coping
- Tension member
- Simple shear connector
- Framed beam connection
- Sheet metal shapes and spans, ie. decking
- Use of decking capacity tables
- Composite vs. Noncomposite deck
- Single vs. double shear
- Capacity of a connection
- Block Shear Rupture
- Effective length, K & bracing
- Beam-Columns
- Combined bending and compression – *interaction*
- P- Δ effect
- Eccentricity