

ARCH 331. 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 22, 23, 24 & 25

- | | |
|--|--|
| <input type="checkbox"/> Constituents to make concrete | <input type="checkbox"/> Shrinkage |
| <input type="checkbox"/> Construction: cast-in-place, prestress, post-tension, ... & finishing/casting terms | <input type="checkbox"/> Cracks |
| <input type="checkbox"/> Behavior in compression vs. tension of concrete | <input type="checkbox"/> Concrete cover and purpose |
| <input type="checkbox"/> Design methodology | <input type="checkbox"/> Clear span / span length |
| <input type="checkbox"/> Load and Resistance Factor Design | <input type="checkbox"/> #3 bar (meaning of the numeral) |
| <input type="checkbox"/> Working loads | <input type="checkbox"/> Why bars need space between/around them |
| <input type="checkbox"/> Factored loads | <input type="checkbox"/> Purpose of compression reinforcement |
| <input type="checkbox"/> Resistance Factors | <input type="checkbox"/> T-section behavior and stresses in flange |
| <input type="checkbox"/> “Design” values vs. “Capacity” | <input type="checkbox"/> Precast load tables |
| <input type="checkbox"/> Density of materials and relation to weight | <input type="checkbox"/> One-way slabs design and “unit” strip |
| <input type="checkbox"/> Load types (and directions) (<i>like D, L, S ...</i>) | <input type="checkbox"/> One-way shear vs. two-way shear (load & strength) |
| <input type="checkbox"/> Load combinations | <input type="checkbox"/> Stirrup strength |
| <input type="checkbox"/> Minimum Design Loads & Requirements | <input type="checkbox"/> Location of maximum shear in beams |
| <input type="checkbox"/> Serviceability and limits | <input type="checkbox"/> Why torsional shear stirrups are “closed” |
| <input type="checkbox"/> Creep | <input type="checkbox"/> Torsional (shear) stress (and where maximum occurs) |
| <input type="checkbox"/> “composite” | <input type="checkbox"/> Shear stress in round, rectangular, open and closed thin-walled sections |
| <input type="checkbox"/> Transformed section | <input type="checkbox"/> Development/embedment length |
| <input type="checkbox"/> Depth of the Whitney stress | <input type="checkbox"/> I transformed, I-cracked, E as a function of weight and cracking |
| <input type="checkbox"/> Moment capacity (or ultimate strength) vs. nominal moment (or strength) | <input type="checkbox"/> Minimum thicknesses for deflection control |
| <input type="checkbox"/> Factored design moment (or shear or) | <input type="checkbox"/> Plate vs. Flat Slab |
| <input type="checkbox"/> Design stress in reinforcement | <input type="checkbox"/> Openings redistribute stress (or cause concentrations) and increase deflections |
| <input type="checkbox"/> Design stress in concrete (28-day) | <input type="checkbox"/> Openings should be reinforced for stresses and deflection control |
| <input type="checkbox"/> Effective depth vs. depth of a beam | <input type="checkbox"/> Continuous beam or slab analysis with coefficients |
| <input type="checkbox"/> Reinforcement grades | <input type="checkbox"/> Composite construction |
| <input type="checkbox"/> Reinforcement ratio | <input type="checkbox"/> Space frame behavior |
| <input type="checkbox"/> Under-reinforced vs. over-reinforced | <input type="checkbox"/> Space frame supports and loads |
| <input type="checkbox"/> Purpose of minimum reinforcement area requirement | <input type="checkbox"/> Folded plate behavior |
| <input type="checkbox"/> Why development length is necessary | <input type="checkbox"/> Folded plate buckling and stiffness requirements |
| <input type="checkbox"/> Use of Strength Design Curves (R_n) | <input type="checkbox"/> Design vs. analysis |
| <input type="checkbox"/> Depth with respect to span length and shape | |
| <input type="checkbox"/> Purpose of stirrup requirement when concrete capacity is available | |