



CORE TRADES

- The w/c ratio is water weight divided by cement weight, so maximum water = $0.45 \times 620 = 279$ lb.
[2025 CA Building Code \(CBC\) Chapter 19 \(Concrete\)](#)
- Residential concrete floor slabs on ground are commonly required to be at least **3-1/2 inches** thick.
[2025 CA Residential Code \(CRC\) R506 \(Concrete Floors on Ground\)](#)
- The rule places receptacles so no point along the wall is more than **6 feet** from one, which is why receptacles fall at most **12 feet** apart.
[2025 CA Electrical Code \(CEC\) Art. 210 \(Branch Circuits\)](#)
- The code requires at least **6 feet 6 inches** of headroom in the working space so a worker can stand and access equipment safely.
[2025 CA Electrical Code \(CEC\) §110.26 \(Working Space\)](#)
- Continuous load is taken at 125 percent, so $32 \times 1.25 = 40$, plus the 40-ampere noncontinuous load gives 80 amperes minimum.
[2025 CA Electrical Code \(CEC\) Art. 215 \(Feeders\)](#)
- For 7 through 9 current-carrying conductors the adjustment factor is 70 percent, because heat cannot dissipate as readily when many conductors share a raceway.
[2025 CA Electrical Code \(CEC\) §310.15 \(Conductor Ampacity\)](#)
- Receptacles within **6 feet** of the outside edge of a sink require GFCI protection because of the shock hazard near water.
[2025 CA Electrical Code \(CEC\) Art. 210 \(GFCI Protection\)](#)
- AFCI protection is required for most 120-volt outlets in dwelling living areas such as bedrooms, where hidden arcing in wiring is a fire risk.
[2025 CA Electrical Code \(CEC\) Art. 210 \(AFCI Protection\)](#)

FRAMING & STRUCTURAL

- On a span-rated panel the two numbers are roof-support spacing / floor-support spacing. [2025 CA Residential Code §R503.2.1](#)
- Panel edge clips (H-clips) are set between rafters at unsupported panel edges to align adjacent panels and share load, allowing a thinner panel for a given span. [2025 CA Residential Code §R803.2.3](#)
- Edge nailing develops a wall's shear capacity; closer edge spacing keeps panel edges tight to the framing and transfers lateral (wind/seismic) load without buckling... [2025 CA Residential Code §R602.3](#)
- A glued-and-nailed floor bonds the panel to the joist so the two act together and do not rub, the main cure for squeaks; adhesive must be continuous and fastened...
- Staggering end joints (a brick-like pattern) keeps adjacent rows from sharing one continuous seam, distributing load and stiffness.
[2025 CA Residential Code §R503.1](#)
- Sealed sheathing joints reduce uncontrolled air leakage through the envelope, supporting the Energy Code's air-tightness objectives and comfort/efficiency. [2025 CA Energy Code](#)
- Panels used as subfloor-underlayment for thin resilient flooring must be specifically rated for that use and have a smooth (touch-sanded) face so joints and grain... [2025 CA Residential Code §R503.2.4](#)
- A header is a beam that spans the opening and transfers the roof, ceiling, or floor loads above it down to the jack (trimmer) studs on each side and into the foundation. [2025 CA Residential Code §R602.7](#)

FINISH TRADES

- Efflorescence is salt carried to the surface by moisture; it must be removed (dry brushing or masonry cleaner) and the underlying moisture problem addressed, or it...
- A coating shrinks as its solvent or water evaporates, so the dry film is thinner than the wet film.
- Fresh cementitious surfaces are strongly alkaline; the alkali reacts with the oil in oil-based paint (saponification), softening the film and causing peeling.
- Zinc coatings resist paint adhesion and react with oil-based (alkyd) primers to cause saponification and peeling.
- Chalk is a loose powder from binder breakdown; a new coat applied over it bonds only to the powder and peels.
- Priming the concealed back and edges balances moisture movement into and out of the board, which reduces cupping, warping, and premature failure of the finish coat...
- Two coats over 432 sq ft is 864 sq ft of coverage.
- Cedar and redwood contain water-soluble tannins that migrate through latex paint and cause brown staining.

PLANNING & ESTIMATING

- Volume of a cylinder = $\pi \times r^2 \times h$.
- The Residential Code requires guards where a walking surface is more than **30 inches** above the floor or grade below; **40 inches** exceeds that trigger, so a guard must be shown. [2025 California Residential Code](#)
- Board feet per piece = (nominal thickness in inches x nominal width in inches x length in feet) / 12 = $(2 \times 10 \times 20) / 12 = 400 / 12 = 33.33$ board feet per piece.
- Gross wall area = perimeter x ceiling height.
- Convert inches to feet: **18 in = 1.5 ft**, **12 in = 1.0 ft**.
- One roofing square covers 100 sq ft.
- Total man-hours = 4 workers x **6 days** x **8 hours** = 192 man-hours.
- Volume = $3 \times 5 \times 100 = 1,500$ cubic feet.

SAFETY

- Cal/OSHA requires an approved protective system, sloping/benching, shoring, or a trench (shield) box, engineered for the soil type, once a trench reaches the... [Cal/OSHA Title 8, Construction Safety Orders](#)
- The California MUTCD temporary traffic control aims to move motorists, bicyclists, and pedestrians safely and predictably through or around a work zone while... [California MUTCD 2014, Part 6](#)
- Construction that disturbs one acre or more generally falls under the state Construction General Permit, which requires a Storm Water Pollution Prevention Plan...
[State Water Resources Control Board, Construction General Permit](#)
- Cal/OSHA hazard communication requires employers to maintain Safety Data Sheets (SDS) accessible to workers, ensure containers are properly labeled, and train... [Cal/OSHA Title 8, General Industry Safety Orders](#)
- Anchorages for personal fall arrest must generally support at least 5,000 pounds per attached worker, or be designed by a qualified person as part of an engineered... [Cal/OSHA Title 8 §1670](#)
- Employers must provide access to shade when the outdoor temperature exceeds 80 degrees Fahrenheit, and it must be available for rest and recovery. [Cal/OSHA Title 8 §3395](#)
- For Type C soil, the maximum allowable slope is generally 1.5 horizontal to 1 vertical, about a 34-degree angle from horizontal, because Type C is the least stable soil. [Cal/OSHA Title 8 §1541.1](#)
- Where a hazardous atmosphere could reasonably exist in an excavation over **4 feet** deep, the air must be tested before entry and controls such as ventilation provided... [Cal/OSHA Title 8 §1541](#)