# **INSPECTION CHECKLIST**

1. **FOUNDATIONS**

**Grading**

 Initial Inspection:

* Scope of Work/Plans
* Check GPI
* Review soils report and/or Department Grading Approval Letter for conditions of approval
* Review Primary Structural Fill Letter and verify soil bearing value is per the approved plans
* Haul route conditions if applicable
* PL and elevation surveys
* Lateral support adjacent properties/roads
* Shoring requirements
* Erosion control measures
* Site/pad 2% required drainage

Excavation Inspection (Bottom or Toe)

* Review plans
* Collect field soils approval memos
* Vertical cuts/Shoring
* Bottom into competent material
* Deputy reports if applicable
* Slope setback Buildings (H/3 downhill 40’, H/2 uphill 15’)
* Slope setback Swimming Pool (H/6 downhill 20’, H/4 uphill 7.5’)
* Drainage devices
* Compaction report approved if R&R took place

**Building Inspection**

 Initial Inspection

* Check approved plans
* Scope of work
* Demo plan to match site conditions (non-conforming yards, etc.)
* Protection devices (Fences, canopies, trenches covered)
* Temporary toilet facilities
* Survey of P.L.
* Establish Elevations for building height
* Deputy, Structural Observation, Geologist approved field memos (if applicable)
* Building. height, Yards, setbacks, (Prevailing front yard setback calculator)
* Methane Hazard Zone requirements
* Flood Hazard Zone requirements
* Ufer ground

Conventional Footings/Slabs

* Soil type and bearing value
* Depth and width of footing excavation
* Forms braced adequately
* Reinforcing steel (size, grade, spacing)
* Anchor bolts and hold downs and hardware spacing
* Underfloor access and clearance to soil (18”)
* Vapor barrier if slab on grade (green code)
* Driveway slope
* Building slope setback requirements met (see grading)
* Easements
* Structural Observation

Drilled Caissons, Piles and Grade Beams

* Soils and geology reports supported by Soils Engineer field memos verifying depth of pile excavations and soil conditions
* Grading deputy report (if applicable)
* Concrete deputy report approving the grade of steel and cages (grade, size and spacing)
* Structural Steel Mill Certs
* Grade beam connection to vertical steel (moment frame)
* Dowels from piles to grade beams in place
* Earth to steel clearances
* Method of placing concrete
* Structural Observation

Retaining Walls/Foundation Walls:

* Check Grading Approval Letter for any shoring requirements (Slot cuts, engineered shoring)
* Approved field soils memo for footing excavation (if on piles, see above)
* Vertical reinforcing steel to be on retaining side of wall
* Block walls
	+ Cell grout joints cleaned on inside
	+ Vertical bars to be tied together
	+ Cleanout requirements
	+ Check plans for hardware embeds (ledger bolts, straps, hold downs)
* Deputy required for grout if designed at higher stress
* Shotcrete
	+ Deputy required
	+ Non-contact splices
	+ Horizontal splice connections to shoring piles (if applicable)
1. **GROUNDWORK**

Electrical

* Minimum cover requirements
* 360 deg. bends max in raceways
* Conductors and raceways protected from damage where exposed
* Suitable backfill material
* Grounding requirements (equipment, bonding, grounding electrodes)

Plumbing

* No clay piping under building envelope
* Minimum cover requirements
* Suitable backfill material
* Approved size piping and grade
* Approved fittings/change of direction
* Required tests for all piping
* Required cleanouts
* Vent gas lines to exterior if under a slab with a roof over

HVAC

* Approved material
* Underground ducts encased in 2” of concrete
* Duct joints properly sealed
1. **ROUGH INSPECTION**

Underfloor

* Removal of forms and debris
* Mudsill requirements (3x material if applicable)
* Check hardware installations (anchor bolts, washers, framing anchors, shear transfers, hangers, etc.)
* Treated wood in contact with concrete
* Underfloor clearances and access
* Size and spacing of framing members
* Double joists under bearing walls
* Blocking requirements (draft and fire stop)
* Ventilation
* Plumbing tests
* Proper strapping of electrical conduit, water piping and ductwork

Floor Nailing

* Diaphragm nailing, shear transfers, common nails
* Review sole plate transfer (3x plate with lags, staggered nailing)
* Periodic deputy report when required
* Recheck elevations for building height

Wall and Roof Framing

* Size and spacing of studs
* Top plate laps and strapping
* Shear nailing and bracing
* Floor/roof nailing schedules
* Drywall backing
* Cutting, notching and boring
* Blocking and firestops and draft stops
* Header and beam sizes
* Light and ventilation
* Celling heights and headroom heights
* Stairs
	+ Rise/Run and landings
	+ Width of stairway including handrail allowances
	+ Headroom
	+ Firestops
	+ Two sets for all stories above 2
* Shear transfers, drag-struts, nailing
* Emergency egress window requirements
* Sound walls for multi-family
* Required exits
* Deputy reports and non-destructive testing for welds due
* Deputy reports and concrete test results due
* Deputy reports for periodic framing due

Roof Framing

* Building height verified (Elevation survey if required)
	+ Critical building heights are (18’, 28’, 33’, 36’ & 45’)
* Size, spacing and connections of rafters, ridge boards, hips and valleys
* Rafter ties/purlins
* Blocking
* Rafter attachment to ceiling joists
* Drag struts
* Roof diaphragm nailing, shear transfers (type of ply and nails)
* Ridge straps (when required)
* Attic ventilation
* Attic access
* Eave overhangs
* Chimney and vent terminations (heights and clearances)

General Rough Requirements

* Re-review yards, setbacks and bldg. height for the zone
* Work is within scope of permit issued
* Erosion control and dust control measures still in place (if applicable)
* Window flashing
* Waterproofing
* Bathroom ventilation
* Door jambs set at proper widths
* Hand and guard rails
* Allowable projections into required yards
* Fire Sprinkler inspection (if applicable)
* Elevator inspection (if applicable)
* Modified 1 hour wall at Garage to dwelling (R-3/U-1)
* Flood elevation certificate
* Methane mitigation components in place

Rough Electrical

* General Requirements
	+ Green sheet, load schedule and required circuits (plan check if required)
	+ Small appliance branch circuits (2 minimum)
	+ General lighting requirements
	+ Laundry circuits
	+ Large appliances
	+ Smoke detectors
	+ Carbon Monoxide detectors (1 per floor with fuel burning equipment)
	+ GFCI outlets
	+ Arc Fault
* Wiring, spacing of outlets (4ft. kitchen and 12ft. floor/wall)
* Required lighting and/or switched receptacles
* Size of conductors and number in conduit
* Strapping and protection of wiring
* Bonding connectors on boxes and fixtures
* Equipment grounding
* Pigtail common or shared neutrals
* Bond all metallic piping (usually at water heater)
* Recessed fixtures are approved and rated for ceilings
* Box and conduit fill
* Service, feeders and panels
	+ Plan check for service rated 600 amps or greater
	+ Location of panel and service head
	+ Panel bussing rated for the installation
	+ Size of conductors, and grounding electrode
	+ Proper bonding of all enclosures
	+ Grounding electrode conductor (driven rod, ufer connection, cold water)
	+ Neutral buss in main panel is bonded to enclosure
	+ Neutral buss in sub-panels ISOLATED from enclosure
	+ Location of panels (NOT in a clothes closet or bathroom)

Rough Plumbing

* Drains, waste and vents
	+ Approved materials (cast iron for bldgs. > 3 stories)
	+ Size and grade
	+ Standing water test (10’ head)
	+ Strapping, supports and protection of piping
	+ Cleanouts for end of the line and > 135 deg. Bends
	+ Fixtures below next uphill manhole cover require Backwater valve
* Water piping
	+ Pipe sizing (plan check?)
	+ Strapping, supports and protection of piping
	+ Pressure test at 50 lbs. or working pressure
	+ Hot water piping insulated outside of bldg. envelope
	+ Bond metallic piping
	+ Pressure relief valve
* Gas Pipe
	+ Approved material
	+ Tracer wire for non-metallic piping in ground
	+ Plan check for 10 outlets or more
	+ Pipe sizing
	+ Strapping, supports and protection of piping
	+ Bond metallic piping
* Miscellaneous plumbing
	+ Water heater installation (location, venting, strapping, combustion air)
	+ Shower pan test
	+ Anti-scald shower valve
	+ Sewage ejector or sump pump requires plan check

Rough HVAC

* Heating equipment
	+ Furnace in attic or underfloor
		- Access opening
		- Switched lighting at access opening
		- 24” catwalk in attic
		- Clear min. 30’ x 30” access path to equipment
		- Venting (clearances, manufacturers installation instructions)
		- EQ strapping and support of equipment
	+ Furnace on roof
		- Permanent ladder if over \_\_\_ ft.
		- Disconnect within line of site
		- Receptacle to service equipment
		- Required guard rail
	+ Furnace in closet
		- 10’ separation of combustion air and return air
		- Vent clearances (manufacturers installation instructions)
		- Combustion air (size of room, intake or natural ventilation
	+ Wall Heater
		- Clearance to combustibles
		- Combustion Air (room serving is large enough per Manufactures Installation Instructions)
		- Vent collar
		- Venting requirements (12’ minimum, Type BW, clearance to combustibles, one framing bay)
* A/C condenser locations (not in sideyard)
* Combustion Air
	+ 50 cubic feet per thousand BTUs
	+ High and Low openings when venting directly outside
* Miscellaneous HVAC
	+ Condensate drains (sloped, secondary to terminate in conspicuous location
	+ Strapping of ducting
	+ Energy requirements (CF-1R)
	+ Access and working clearances for equipment
	+ Vent terminations (clearances to walls, roof, windows and doors)
	+ Vent offsets max 45°. With one 60° offset
	+ 75% / 25% ratio
	+ Ductwork supported, airtight, insulated, approved material and properly sized
	+ Fireplace and chimney clearances to combustibles per Manufacturers Installation Instructions
	+ VHRF systems inside bldg. envelope (room size requirements)

Green Code

* Solar ready
* E/V ready
* Gray water ready
* Moisture exhaust bathroom
* Vacancy sensors
* Bathroom exhaust
* Cool roof

Rough Grading

* Drainage devices
* Waterproofing foundation walls
* Compaction reports for backfill submitted
* Establish finish grade for measurement of building height
* Collect grading deputy reports
1. **INSULATION**
* Check plans for energy calculations or prescriptive measures
* Floor, walls and ceiling (under cantilevered floors of conditioned space)
* Fenestration of glazing
* Seal penetrations around doors, windows, sill plates, etc. (Green Code)
* Collect energy certificate if licensed contractor install
1. **EXTERIOR WALL COVERING**

Stucco Lathe

* Double paper over plywood
* Paper lapping requirements (6” inches vertical, 3” horizontal)
* Proper furring
* Attachments specs (nails or staples)
* Outside corners required when lap is less than 16” from corner
* Weep screed
* Flashing and counter flashing at decks and intersections
* Windows properly flashed with sill paper over lathe paper
* Stucco molds in place

Veneer

* Anchored veneer anchors in place
	+ Stone up to 10” thick
	+ Slab type up to 2” thick
* Check plans for specs

Drywall

* Type X at R3/U1 occupancy separation
* Screws and nails do not penetrate paper
* Screws 12” o.c., nails (7” ceiling and 8” walls)
* Electrical boxes flush with combustible finish or within ¼” of drywall
1. **FINAL INSPECTIONS**

General Building

* Verify all required approvals from Grading Div., Fire Sprinkler Div. and Elevator Div.
* Review approved plans and any conditions of approvals for discretionary projects
* Sewer is connected and information entered into Public Works system
* Public works improvements completed
* Address numbers visible from street
* No equipment in required yards
* Driveway paved
* Underfloor and attic screens
* Self-closing self-latching fire door at garage to dwelling (R-3/U-1 Separation)
* Rain gutters and drainage to street (or to planter boxes and rain barrels)
* Pool enclosures in place
* Weather stripping
* Location of Smoke Detectors
* Location of Carbon Monoxide Detectors
* Impact hazard glazing (around tubs, showers, adj. to stairs, within 18” of floor, etc.)
* Egress requirements (windows, doors, basements wells)
* Energy requirements
* Security requirements
* Finish Stairs
	+ Rise, run, width and landings
	+ Handrails (four or more risers)
	+ Guards (30” above grade)

Electrical

* Check green sheet for any changes
* All outlets finished with approved covers (weatherproof for exterior)
* Outlets are flush or within ¼” of non-combustible finishes (flush with combustibles)
* Lighting per state energy requirements
* Receptacles grounded
* GFCI outlets where required
* Arc-fault breakers where required
* All panels and sub-panels labeled
* Over current protection for appliances
* Location/type of disconnects
* HACR breakers for A/C motors (sized for Full Load Amps)
* Properly sized overcurrent protection per wire size and nameplate ratings
* Solar
	+ Per plans
	+ Arrays bonded and connected properly
	+ Disconnects per DWP
	+ Grounding
	+ Labeling

Plumbing

* Fixtures installed
* Air gap for dishwasher
* Toilet clearances
* Final gas test (min. 10 lbs. 15 minutes)
* Main Shut-off valve installed
* Pressure regulator when required
* Water meter and size
* Water heater
	+ Anchored
	+ Vent connected and terminated properly
	+ Temperature and Pressure relief valve to exterior
	+ Combustion air
	+ 18” above floor in garage
* Finish shower dimensions and dam
* Anti-siphon devices
* Low flow shower heads and toilet

HVAC

* Compliance with state energy code
* Venting
	+ Suitable for type of fuel used
	+ Per listing of manufacturer
	+ Terminations (clearance to walls, windows, doors and roof)
	+ Proper cap
	+ Vent connector and draft hood clearances
* Clearances and access to equipment in underfloor/attic
* Combustion Air
	+ Check amount of area in openings and when ducted
	+ High and Low air when vented
	+ Openings not restricted
* Condensate lines terminate to approved locations
* Appliance connectors approved and properly sized
* Required filters
	+ Merv 13 filters when within 1,000 feet of freeway
* A/C condenser locations (not in sideyard)

Ordinance Inspections

* SGSOV
* Green Code
* Flood Hazard Program
* Fire Sprinklers
* Smoke Detectors
* Merv 13 filters

Final Grading

* Drainage devices to approved location
* Vee channels at all retaining walls supporting slope
* Review and approve compaction report for all backfill
* Check finish elevations per the approved plans
* Slopes planted and irrigated

Final Green Code:

* Cool Roof
* Solar Ready
* EV Ready
* Low flow fixtures
* Vacancy sensor/switches
* Gray Water ready
* No wood burning fireplaces
* Pollutant Control (collect paperwork)
1. **SWIMMING POOLS**

Grading:

* Field soils memo for bottom
* Soil is a consistent type and color at bottom

Pre-gunite:

* Verify grading approval (if applicable)
* Soil is a consistent type and color at bottom
* Deck or no deck detail
* Bond beam to be continuous (4 or 6 bar with ties)
* Check skimmer detail
* Rebar size, spacing and radius bends per plans
* Damn wall with plumbing requires double curtain
* Bonding
	+ Solid wire required for bonding all metal parts within 5’ of pool
	+ Water bonding plate
	+ Solid wire from rebar to pool motor
	+ Lights to be listed and bonded
	+ Plastic conduit to light requires equipment ground terminated at light shell with approved mastic
	+ Brass conduit bonded to rebar grid with solid wire
	+ Pool cover motor bonded to rebar grid
* Water piping test 35 lbs.
* Minimum rebar coverage
* Water piping not to be encased in required wall thickness (7” min thick)
* Anti-syphon split main drain
* Location of pool equipment
* Overhead power lines >18 above water (12’ for triplex wire with DWP approval OK)

Pre-Plaster

* Check bonding and grounding of lights
* Check pool enclosure
	+ 5’ gates self-closing and latching and opens away from pool
	+ Door alarms when required
	+ Additional safety features if door alarms not used
* Collect Deputy report for gunite/shotcrete

Final Inspection

* Verify Grading final
* Anti-syphon components
* Pool enclosure components in place and functioning
* Check for GFCI protection installed on pool lights
* Electrical panel labeled
* Bond wires attached to motors and equipment
* Pool cover (Green Code)