



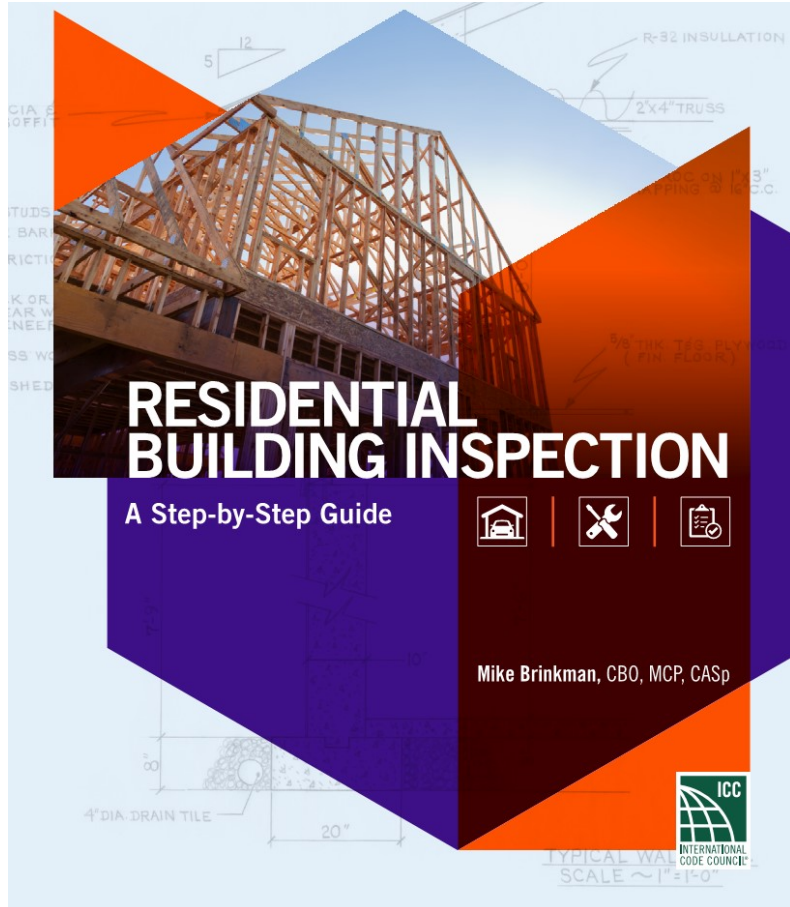
Welcome to the

2018 Annual Conference Educational Sessions

Session: Residential Building Inspection: A Step-by-Step Guide

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Residential Building Inspection: A Step-by-Step Guide

Mike Brinkman, CBO, MCP, CASp
CSG Consultants

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Mike Brinkman, CBO, MCP, CASp

Building Official, CSG Consultants, Inc.

- Over 30 years in the construction trades, last 14 in Building and Safety Industry
- ICC certified Master Code Professional; 21 - ICC certifications
- California Certified Access Specialist - CASp #071
- Treasurer - ICC Region I
- Past President - Yosemite Chapter of ICC
- Member - CALBO Access Committee
- Member - CALBO Plumbing, Mechanical, and Electrical Exam Development Committee
- Founding Member - Certified Access Specialist Institute (CASI)
- CALBO Training Institute - Instructor 2016-2017
- Building Official of the Year 2018 - County Building Officials Assoc. of California
- California Licensed Contractor #688121 C-61 D-26 (inactive)

Overview

- This book was designed to assist the entry level Building Inspector on the steps and procedures required for individual inspections. The individual inspections included in the book are based on the minimum requirements needed for the development in becoming a Level One Building Inspector.
- Each inspector will develop their own style and procedure when conducting inspections. The procedures and language listed in this book may differ from what you've been taught in your jurisdiction, each jurisdiction is unique to their own processes and procedures. The hope is that this book can be useful in some way and be another tool to use in your development.
- Additional benefit to Permit Tech's, Contractor's, Home Owners, Vocational Trainees, even seasoned inspectors and Building Officials needing to brush up on certain inspections.



SOFT SKILLS

Soft skills are an important part of the everyday activities of all building industry professionals. Generally, all parties during the construction process strive to efficiently and effectively finish a safe place for families to live in without the need for recalls, multiple returns after final or legal complications. Toward that goal, all parties should comply with the adopted codes as they were intended, be service oriented and be open-minded when finding solutions. Consistency, clarity of written and spoken communication, time lines and continuous learning are critical aspects for those involved in the building industry.

Two popular ICC publications and training based on them address these topics in-depth. *Inspector Skills* by Stephen Van Note and *Report Writing for Code Inspectors* by Jean Reynolds and David Diamantes can be found at the following links:

Inspector Skills: <http://shop.iccsafe.org/inspector-skills.html>

Report Writing for Code Inspectors: <http://shop.iccsafe.org/report-writing-for-code-inspectors.html>

For ICC training and education, go to: <https://www.iccsafe.org/education-certification/education/training-events/>

INSPECTIONS COVERED IN THE BOOK

New Construction of a Single Family Residence

- UNDER SLAB PLUMBING INSPECTION
- FOUNDATION INSPECTION
- ROOF AND SHEAR INSPECTION
- FRAME INSPECTION
- INSULATION INSPECTION
- GYPSUM BOARD (SHEETROCK), LATH AND GAS INSPECTION
- ELECTRICAL PANEL RELEASE INSPECTION
- UTILITY RELEASE / GAS TAG INSPECTION
- FINAL INSPECTION

UNDER-SLAB PLUMBING INSPECTION

This is the first of several required inspections for a single-family residence/dwelling (SFR or SFD) constructed on a concrete slab. The footprint of the house is formed and drain/sewer/water pipes should be in trenches, sealed and pressurized. Following are brief descriptions of items to look for during this inspection.



UNDER-SLAB PLUMBING

Also Called:

- Rough Plumb
- Drain Lines
- Sewer and Water

- Identify if the Under-Slab Plumbing inspection includes the Building Sewer and Water inspection. The Under-Slab Plumbing inspection includes only the plumbing within the footprint of the house up to the clean-out within 30 inches of the house. The building sewer and water service is the piping outside the house footprint to the property line or city water meter and public sewer tie-in. The sewer and water would be different if the house was built in a rural area with a private well and septic system.
- For the ABS pipe pressure test, verify that a 10-foot head of water is present and filled with water to the top of the pipe.
- Check pipes and fittings for leaks.

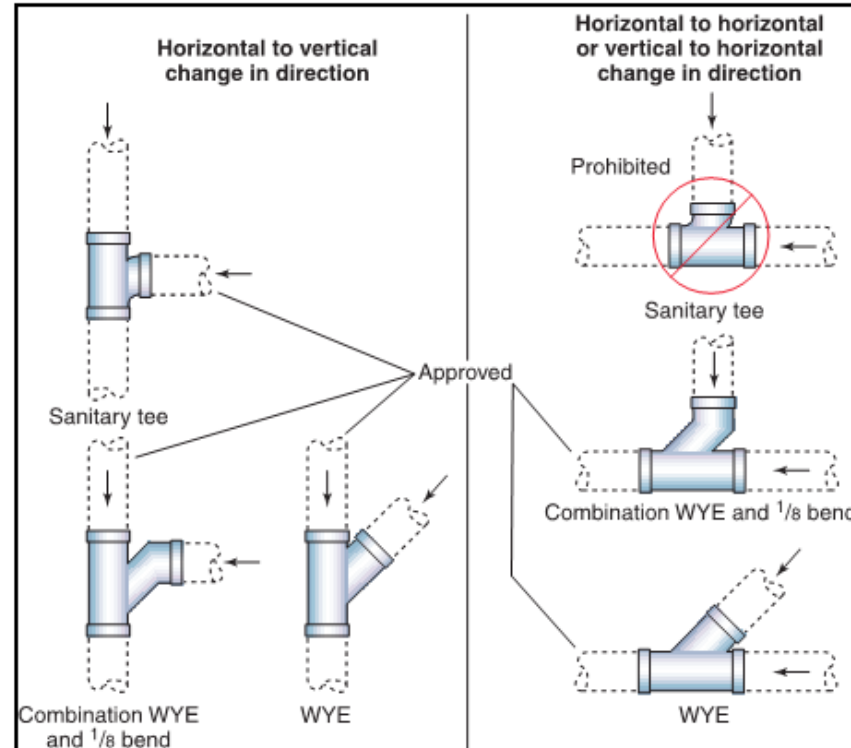
UNDER-SLAB PLUMBING INSPECTION

- Make sure the main drain lines are sized properly for the house.
Examples: 3 water closets min. 3-inch pipe, 4 or more water closets min. 4-inch pipe
- Identify each drain riser (pipe) for its intended use, to properly verify that the size pipe is appropriate for the fixture. Identify and size the risers used for any second-floor drains.



PIPE IDENTIFICATION

- Identify and size vents for each fixture, making sure trap arm lengths are not exceeded.
- Identify each fitting for correct application and flow direction.



DWV FITTINGS FOR CHANGE IN DIRECTION

- Check for proper 2% slope on ALL horizontal pipes. A 4-inch or greater building sewer line may have a 1% slope when first approved by the code official.
- Plumbing pipes must be exposed and properly “shaded,” completely supported in the trench on a bed of clean dirt or sand. Sharp rocks or large clumps of dirt under pipes could cause cracking, breakage or other damage to the pipes.
- Identify front and back clean-outs.
- If a water service line is included, check that the line is properly sized per plan and pressurized with city pressure and the depth is correct in trench.

UNDER-SLAB PLUMBING INSPECTION

- If the water line is PVC, all pipes and fittings shall be cleaned and joined with listed primers and solvent cements.
- If a building sewer line is included, check for the same requirements as drain lines (leaks, slope, shading, fittings, and so on).



IDENTIFYING DRAIN PIPES FROM SEWER PIPE



FOUNDATION INSPECTION

This is the next inspection required after the under-slab plumbing has passed. The trenches are covered, and all the necessary components of the foundation/footings should be in place.



ENGINEERED DESIGN FOUNDATION

Also Called:

→ Footings



CONVENTIONAL FOUNDATION



POST-TENSION (PT) SLAB

FOUNDATION INSPECTION

- If your jurisdiction does not use a surveyor to verify the location of the house, you need to locate the property line hub markers and extend a string line between the front and back markers on each side of the house. Check measurements of setbacks according to the Approved Plot Plan.



SURVEY PROPERTY PIN MARKER



STRING LINE BETWEEN PROPERTY PINS TO MEASURE SETBACKS

FOUNDATION INSPECTION

FLOODPLAIN INSPECTIONS

For construction in flood hazard areas, upon placement of the lowest floor, including the basement, and prior to further vertical construction, the building official shall require submission of documentation, prepared and sealed by a registered design professional, of the elevation of the lowest floor, including any basement.



FLOODED DWELLINGS

ROOF AND SHEAR INSPECTION

This inspection is performed before any building paper; roof underlayment; or rough plumbing, mechanical or electrical is installed. This would allow you to verify all the required shear walls/braced walls, roof nailing, exterior strapping and hold-downs before they're covered with the weatherproofing of the house. The Roof and Shear inspection can be a lengthy and involved process, depending on the size of house and if and how it is engineered. These steps and procedures are just the basic overview of what is necessary for the inspection. Each inspector will develop their own procedures that best suit their inspection style.

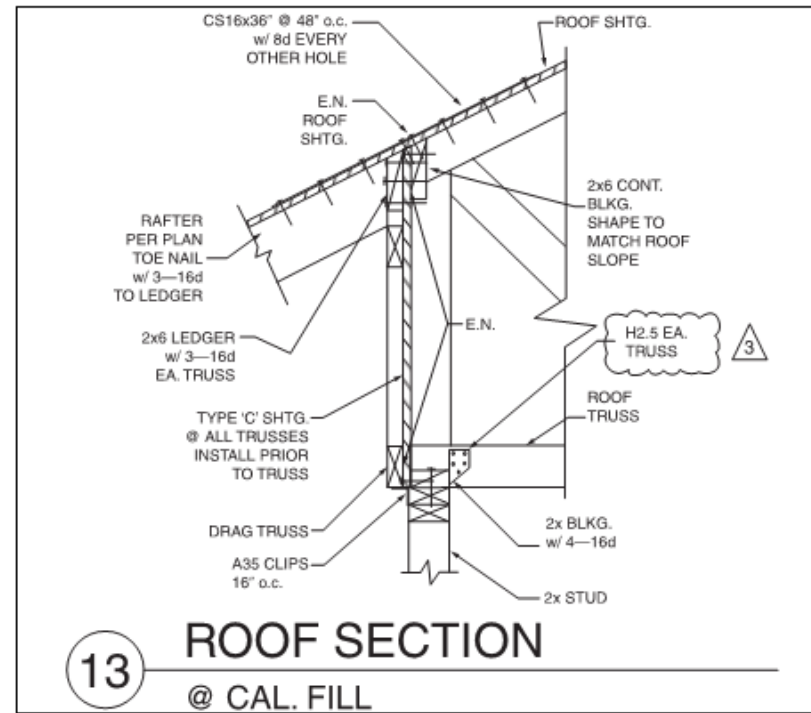
Also Called:

- Framing
- Sheet and Shear
- Roof Nail and Shear



HOUSE READY FOR A SHEAR INSPECTION

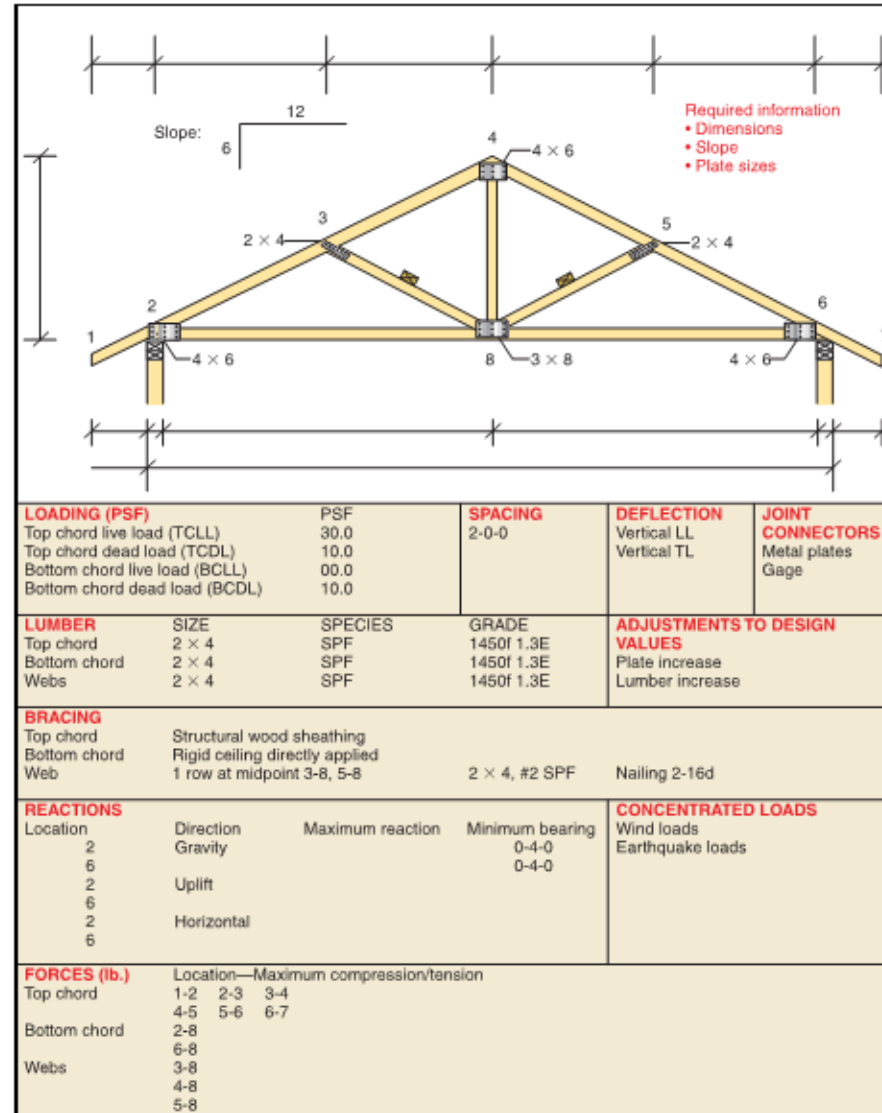
- Look at each referenced detail pertaining to your location, making sure the framing of that portion was followed per detail illustration. (*Pay close attention to the shear transfer details.*)



EXAMPLE OF SHEAR TRANSFER DETAIL

- Proceed with the inspection of the interior of the house. Following the same procedure as the exterior, locate any interior shear walls.
Examples: Length, hold-downs, anchor bolts, transfer, nailing schedule, correct studs, etc.
- Identify header/beam and post sizes, top plate breaks and anchor bolt spacing. Verify that all beams are supported at both ends, down to the foundation.
- Identify any girder trusses for proper support and correct hardware per plan.

ROOF AND SHEAR INSPECTION



REQUIRED INFORMATION ON TRUSS DESIGN DRAWING

ROUGH-IN/ FRAME INSPECTION

This inspection is performed after the house is weather-tight, including the exterior building paper with stucco lath or siding installed. The roof should have the underlayment installed and the roofing materials evenly loaded across the house, or the roofing may be completed. All exterior doors and windows should be installed.

The Rough-in inspection can also be an involved inspection, depending on the size and materials used for the house. These steps and procedures are just the basic overview of what is necessary for the inspection. Each inspector will develop their own procedure that best suits their inspection process.

The following procedures are examples of a combination inspection. There are several jurisdictions that may require a separate inspection for each trade. A plumbing inspector will inspect only the rough plumbing and mechanical; an electrical inspector will inspect only the rough electrical; and a building inspector will inspect the framing after all of the cutting and notching from the trades has been completed.

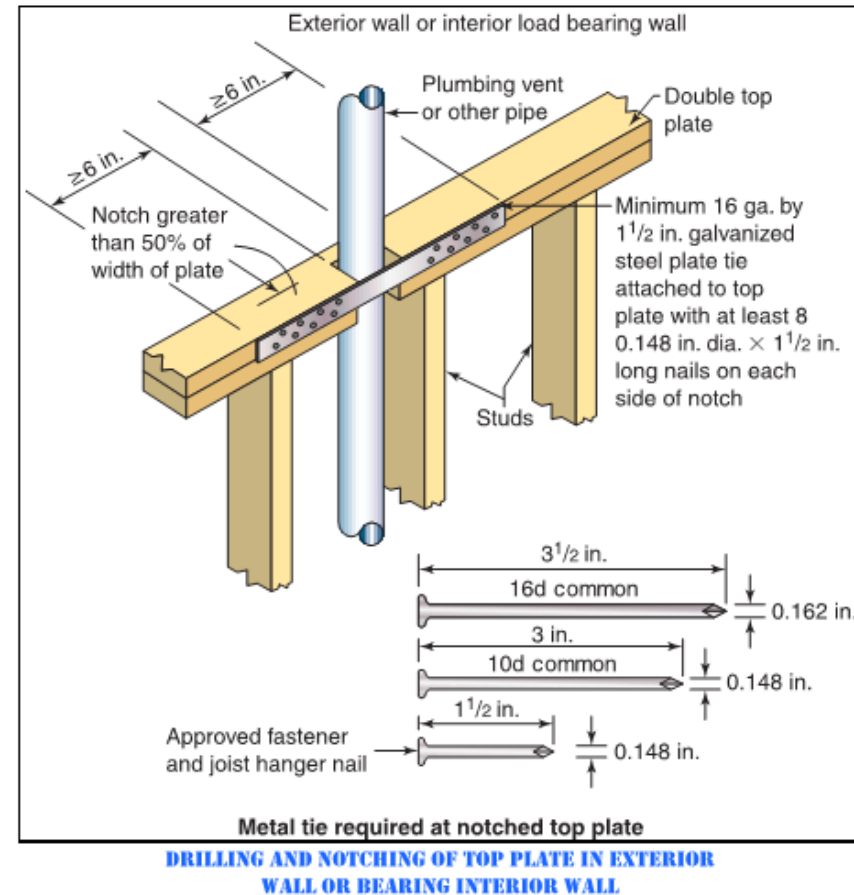
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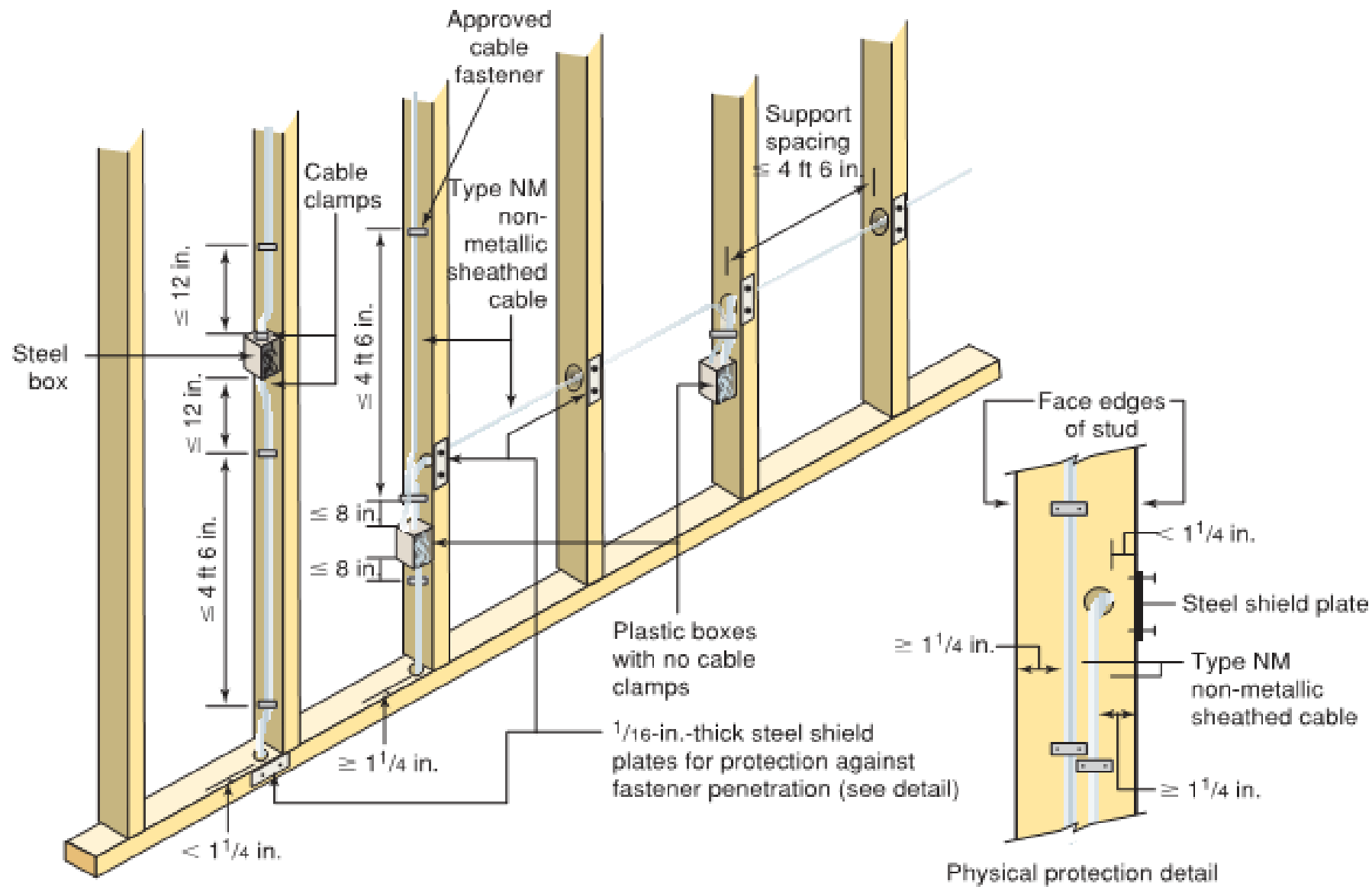
- Frame
- Top Out
- Rough Plumbing, Mechanical and Electrical (PME or MEP)
- Four-way Inspection
- Combination Frame/PMG (plumbing, mech, gas)



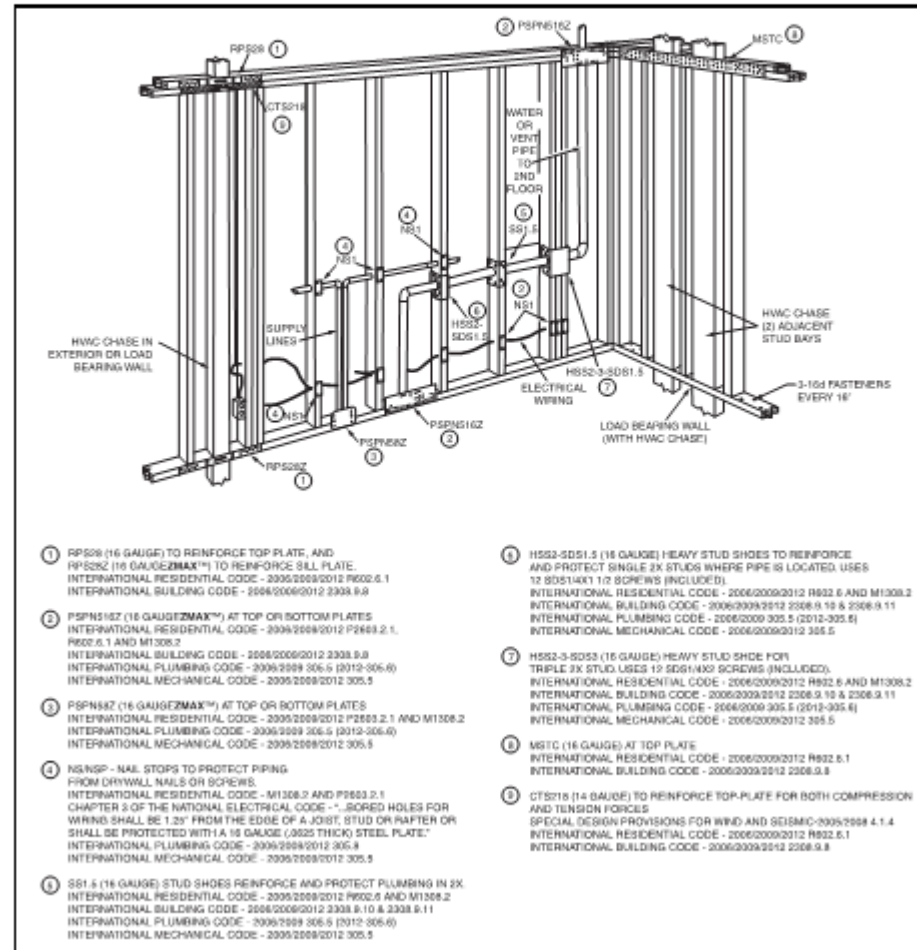
ROUGH-IN/FRAME

- Continue the inspection throughout each room of the house, checking the framing, electrical, fuel gas, mechanical and plumbing.
- Check that all of the framing hardware used for top plate breaks as well as plumbing, mechanical and electrical holes and notches have proper protection. Verify that the correct hardware is used for each application and that the correct fasteners are used per manufacturer's recommendations.





ROUGH-IN/ FRAME INSPECTION



PROTECTION DETAIL





INSULATION INSPECTION

This inspection follows the Rough-in/Frame inspection. The exterior walls will be insulated; all the penetrations through the top plate and attic spaces should be filled, etc.



INSULATION

Also Called:

→ Energy Inspection

GYPSUM BOARD, LATH AND GAS INSPECTION

These inspections can be performed individually; however, the Gas Test **MUST** be done after the gypsum board and lath nailing due to the possibility of a stray nail, screw or staple hitting the gas pipe. Combining these inspections saves time compared to an individual inspection of each item.



EXTERIOR LATH

Also Called:

- Sheetrock, Lath and Gas
- Gyp board Nailing, Lath Nailing, Gas Test

GYPSUM BOARD, LATH AND GAS INSPECTION

- On a single-coat stucco system over the foam panels (if allowed in your jurisdiction), tongue-and-groove panels should be installed horizontally, where the tongue is on top of the panel and the groove is on the bottom. Any gaps in the foam over $\frac{1}{4}$ inch should be sealed. (Check ICC-ES Report ESR-2564.)



SINGLE-COAT STUCCO SYSTEM

- Any penetrations through the paper and foam must be sealed.
Example: Electrical outlets, pipes, vents, etc. (Electrical outlet boxes should be flush with the foam panels or protrude past the thickness of the stucco finish.)

- Proceed with the gypsum board nail inspection.
- Start in the garage. Verify that the separation walls between the dwelling and the garage are covered with a minimum $\frac{1}{2}$ -inch gypsum board on the garage side with nails spaced at 7 inches and screws at 12 inches. If gypsum is installed over shear wall plywood, you must verify that the nails and screws being used are properly sized to penetrate a minimum of $\frac{3}{8}$ inch into the framing member. (This usually occurs at the back garage wall.)



GYPSUM NAILING IN GARAGE

- Most garages today are fully finished with gypsum board on the walls and ceiling; the $\frac{1}{2}$ -inch gypsum must be present on common walls between the garage and house and on the ceiling of the garage. If the ceiling is not covered, then the $\frac{1}{2}$ -inch gypsum must continue above the common walls of the house and garage to the underside of the roof sheathing to eliminate the house attic communicating with the garage attic.

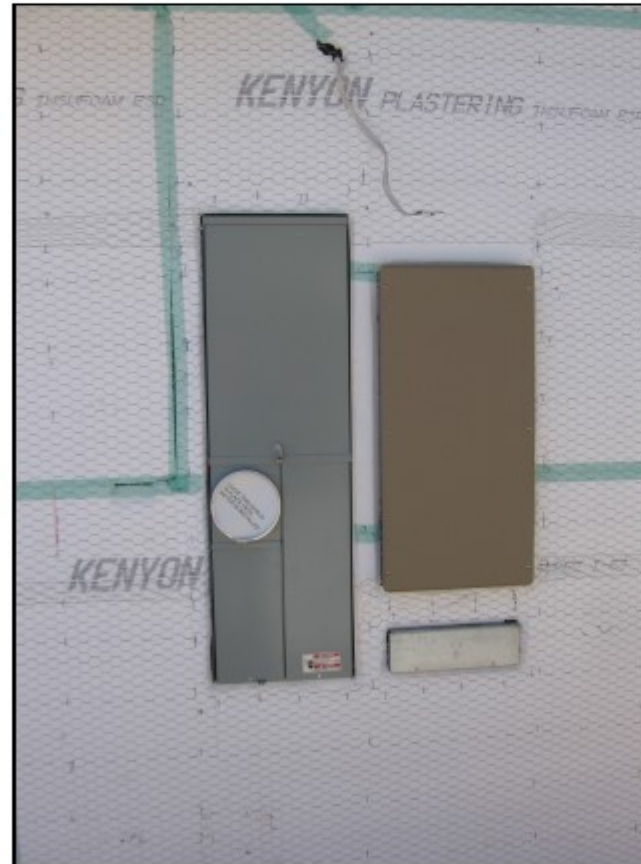


ELECTRICAL PANEL RELEASE INSPECTION

This inspection is required to verify that it is safe for the utility company to connect power to the service panel and install a meter. *Some jurisdictions do not allow this inspection at this point in construction (see photo below). Check the processes and procedures in your jurisdiction. The release of the panel may only be allowed prior to the Final inspection.*

Also Called:

→ Temp. Power



ELECTRICAL METER RELEASE

Conductor types and sizes*		Allowable ampacity, max. load (amps)	Min. grounding electrode conductor size	
Copper (awg)	Aluminum and copper-clad aluminum (awg)		Copper (awg)	Aluminum (awg)
4	2	100	8	6
3	1	110	8	6
2	1/0	125	8	6
1	2/0	150	6	4
1/0	3/0	175	6	4
2/0	4/0 or two sets of 1/0	200	4	2
3/0	250 kcmil or two sets of 2/0	225	4	2
4/0 or two sets of 1/0	300 kcmil or two sets of 3/0	250	2	1/0
250 kcmil or two sets of 2/0	350 kcmil or two sets of 4/0	300	2	1/0
350 kcmil or two sets of 3/0	500 kcmil or two sets of 250 kcmil	350	2	1/0
400 kcmil or two sets of 4/0	600 kcmil or two sets of 300 kcmil	400	1/0	3/0

*THHN, THHW, THW, THWN, USE, RHH, RHW, XHHW, RHW-2, THW-2, THWN-2, XHHW-2, SE, USE-2.

Note: Service conductors in parallel sets of 1/0 and larger are permitted in either a single raceway or in separate raceways. Grounding electrode conductors of size 8 AWG require protection with conduit. Grounding electrode conductors of size 6 AWG require protection with conduit or must closely follow a structural surface for physical protection.

UTILITY RELEASE/GAS TAG INSPECTION

This inspection is required so the utility company can be informed that it's safe to connect the gas meter to the house.



GAS TAG RELEASE

FINAL INSPECTION

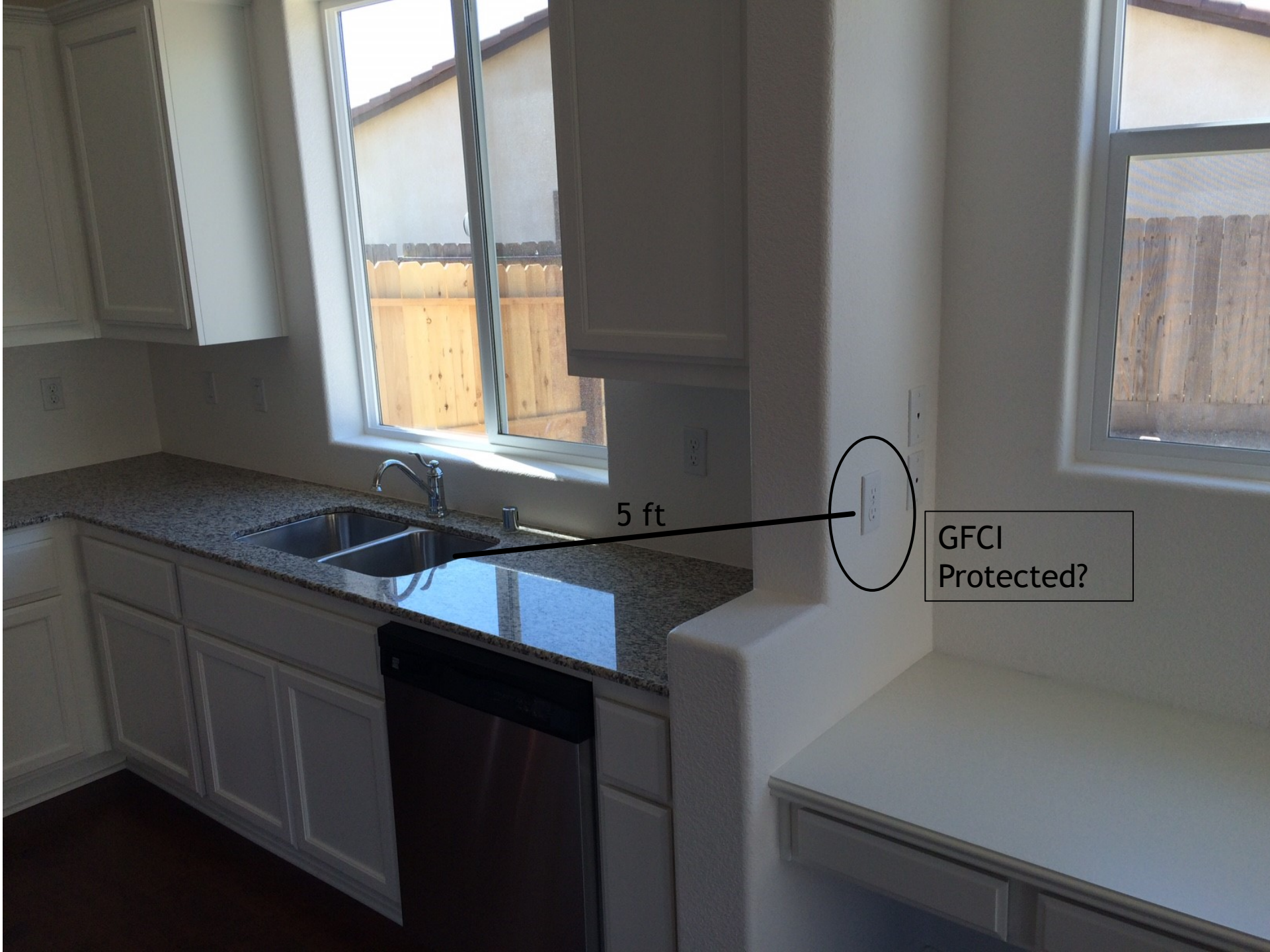
This is another inspection that can be complex. Since a checklist would be too lengthy, this is an overview of what is normally inspected at Final.



READY FOR FINAL INSPECTION

Also Called:

→ Certificate of Occupancy



ADDITIONAL INSPECTIONS COVERED IN THE BOOK

Misc. Residential Inspections

- ADDITIONS, REMODELS, & ALTERATIONS
- ELECTRICAL PANEL CHANGE-OUT INSPECTION
- ENERGY/GREEN
- GARAGE CONVERSION INSPECTION
- HVAC CHANGE-OUT INSPECTION
- PATIO COVER INSPECTION
- PHOTOVOLTAIC INSPECTION
- RE-ROOF INSPECTION
- SWIMMING POOL INSPECTION
- TEMPORARY POWER POLE INSPECTION
- WATER HEATER CHANGE-OUT INSPECTION
- WATER SOFTENER INSPECTION

ADDITIONS, REMODELS AND ALTERATIONS



ROOM ADDITION

These inspections require a good understanding of ALL of the individual trade codes. Unlike a garage conversion (if allowed in your jurisdiction), these projects usually have professionally drawn plans or plans with more complete descriptions and details. The structural and life-safety issues would be addressed at the plan review phase. It would be your job to determine if the information used to design the new addition is adequate.

ELECTRICAL PANEL CHANGEOUT INSPECTION

This inspection usually occurs at an older home where the existing electrical panel is too small or outdated for today's demands. This example is a changeout of a 100-amp service with a 200-amp. Your first inspection will be similar to an electrical panel release inspection. The utility company would have removed power to the panel, and the old panel should have been removed and replaced with the new panel. All of the branch circuits do not have to be hooked up at this time.



ELECTRICAL PANEL CHANGEOUT

- Verify the size of the service conductors for the new panel from the appropriate table of the current electrical code book.

Example: For a 200-amp service, conductors should be 2/0 copper

Conductor Type and Sizes*		Allowable ampacity, max. load (amps)	Min. grounding electrode conductor size	
Copper (AWG)	Aluminum and copper-clad aluminum (AWG)		Copper (AWG)	Aluminum (AWG)
4	2	100	8	6
3	1	110	8	6
2	1/0	125	8	6
1	2/0	150	6	4
1/0	3/0	175	6	4
2/0	4/0 or two sets of 1/0	200	4	2
3/0	250 kcmil or two sets of 2/0	225	4	2
4/0 or two sets 1/0	300 kcmil or two sets of 3/0	250	2	1/0
250 kcmil or two sets of 2/0	350 kcmil or two sets of 4/0	300	2	1/0
350 kcmil or two sets of 3/0	500 kcmil or two sets of 250 kcmil	350	2	1/0
400 kcmil or two sets of 4/0	600 kcmil or two sets of 300 kcmil	400	1/0	3/0

*THHN, THHW, THW, THWN, USE, RHH, RHW, XHHW, RHW-2, THW-2, THWN-2, XHHW-2, SE, USE-2.

Note: Service conductors in parallel sets of 1/0 and larger are permitted in either a single raceway or in separate raceways. Grounding electrode conductors of size 8 AWG require protection with conduit. Grounding electrode conductors of size 6 AWG require protection with conduit or must closely follow a structural surface for physical protection.

SERVICE CONDUCTOR AND GROUNDING ELECTRODE CONDUCTOR SIZE

- Check that the conductors are properly identified. The grounded/neutral conductor is usually identified with a white stripe or white tape, and the ungrounded/ hot conductors are solid black.
- Verify that the neutral and the ground bus bars are connected together with an appropriate bonding jumper. This can be achieved with the properly sized conductor or with the included manufactured 'green' fine-threaded screw.

The most significant standards of the *International Energy Conservation Code*® and the *California Energy Code* for a residential building are: efficient lighting, water heaters, building insulation, fenestration (windows) and HVAC testing.

The *International Green Construction Code*® requirements include water use, construction waste, building maintenance and operation forms, pollutant control, recycling and documentation.

These requirements are inspected throughout the construction of a house, starting at the Rough-in/Frame inspection. There may be individual energy inspections in your jurisdiction. The contractor should provide the approved documents for that individual house; the plans or energy documents will provide you with all the requirements for the windows, insulation, lighting, water heater, and so on.



ENERGY-EFFICIENT LIGHT BULB

GARAGE CONVERSION INSPECTION

Check with your jurisdiction to see if garage conversions are allowed!

These inspections may seem like just a simple garage conversion (no big deal). But you must have a good understanding of ALL of the individual trade codes, especially if a bathroom or a furnace and/or water heater is located in the garage.

Most conversions are designed and built by the homeowner or a small local contractor who does not get professionally drawn plans. It's very easy to become complacent and overlook important issues that may come up during the construction process if you're used to inspecting professionally designed houses.

Homeowners sometimes make changes from the approved plans, and you must determine if the changes are acceptable. It is helpful to be patient when working with homeowners; this process may be new to them and they may not be informed about important code requirements.

This example features a conversion with a bedroom and bathroom, and the garage also has a gas appliance inside (water heater/FAU).

HVAC CHANGEOUT INSPECTION

These inspections may differ with new code updates. This example is based on past requirements. Check the recent code editions for any updated requirements.

Determine what type of system is installed.

- Packaged unit—Rooftop or ground; the furnace and AC are all together in one unit.



HVAC PACKAGE UNIT ON ROOF

PATIO COVER INSPECTION

A typical patio cover would usually require about three inspections: Footings/Setbacks, Frame and Final.

As you will discover, there are a number of different types of patio covers you will be inspecting. Some can be completed with just one inspection whereas others will require well over three inspections. And yes, you do need a permit for a detached patio cover!

Since there are several different varieties of patio covers to inspect, providing the actual steps and procedures for each type of patio cover would be lengthy. This example lists the three basic inspections of a wood-constructed patio cover.



ATTACHED WOOD PATIO COVER

FOOTINGS/SETBACKS

- Check the approved set of plans and verify the setbacks and the location of the patio cover per plot plan.
- Verify the depth, size and distance apart for each footing.

FRAME

- Check the permit for any notes or corrections.
- Verify that the patio cover was built according to the plans. Check for the correct size and spacing of rafters, beams, posts, hardware, etc.
- A lot of times the correct size lumber and hardware are used, but are installed incorrectly.
Example: The plans call for a 2 × 8 rafter, but the rafter was over-notched at the beam, basically changing the load capability of the 2 × 8 to a 2 × 4 or worse. You would have to determine if it could be corrected or replaced.
- After you determine that it's framed correctly, check the roof nailing if the patio cover has a solid roof.
- There may be electrical, a gas line or something else included with the permit. Check that it is installed correctly and per plan. If additional items were installed, a supplemental permit may be required.

FINAL

This is basically like every other Final inspection. Check the plans and make sure everything is complete and nothing new was added. All the exposed wood is sealed, painted, primed or flashed. If the patio cover is attached to the wall, verify that it's properly sealed to prevent moisture from getting behind the ledger board.

PHOTOVOLTAIC INSPECTION

All of the equipment, array modules, inverters, racking, combiner boxes, disconnects, fittings, and so on, shall be installed per approved plans and manufacturer's installation instructions. All material and equipment shall be listed and labeled by an approved testing agency.



ROOF-MOUNT PHOTOVOLTAIC (PV) SYSTEM

ROOF-MOUNT SYSTEMS

- Rough electrical (for concealed wiring, if applicable)
- Roof array and bond (for integrated systems or tile roofs)
- Final inspection (may be combined into one inspection)

INSPECTION CHECKLIST

- ◆ Approved plans, inspection record card, and manufacturer's installation instructions shall be made available on-site.
- ◆ Installation of equipment shall be as per approved plans. If the installation differs from approved plans, an additional plan review may be required.
- ◆ A ladder complying with OSHA requirements shall be made available and secured in place for inspection.
- ◆ All required working clearances for electrical equipment must be provided and maintained.

SERVICE EQUIPMENT

- ◆ The service equipment and its verifiable bus rating shall be adequate and properly sized for the designed backfeed from the photovoltaic (PV) system.
- ◆ Check approved plans to verify if the main circuit breaker is required to be derated to accommodate the new PV circuit.
- ◆ The service grounding and bonding connections shall be located and verified.

REROOF INSPECTION

There are typically two types of reroofing applications: one is a reroof/tear-off and the other is an overlay.

There are typically three required inspections for a tear-off: preroof, roof nail and final. For an overlay, there should be two inspections: preroof and final. However, each jurisdiction may vary on the number and types of required inspections.

REROOF/TEAR-OFF

PREROOF/TEAR-OFF

This is the first inspection after the old roofing material is removed down to the original sheathing. All of the damaged boards and dry rot should be replaced in readiness for the installation of the plywood sheathing.



PREROOF TEAR-OFF DOWN TO THE SKIP SHEATHING

- ♦ Check the permit for any notes or corrections. Verify that all damaged wood was replaced.
- ♦ Access the roof and verify the 6-inch edge nailing and 12-inch field nailing throughout the roof. (It is not advisable to walk on a wet roof. Early morning inspections may still have the morning dew!)
- ♦ Verify clearances of sheathing to all mechanical vents (B-vents, flues).



THE REASON WHY CLEARANCE IS REQUIRED AROUND COMBUSTIBLES

- ♦ Check all roof jacks at plumbing vents and electrical riser for rust or damage and replace as needed.
- ♦ Check that the required attic ventilation vents are, or will be, installed.

SWIMMING POOL INSPECTION

There are typically three types of pools: in-ground/gunite pools, fiberglass/one-piece pools and prefabricated above-ground pools.

IN-GROUND/GUNITE POOLS

There are typically four required inspections for these types of pools:

- Pre-gunite/steel bonding
- Predeck
- Preplaster/barriers
- Final

PRE-GUNITE

This is where the hole is dug and the rebar reinforcement is installed. The rough plumbing, gas (if used) and electrical are trenched and in place, including bonding of the rebar and any metal within 5 feet of the water's edge.



IN-GROUND POOL PRE-GUNITE INSPECTION

FIBERGLASS/ONE-PIECE POOLS

The first inspection of this type of pool requires that barriers be installed. As soon as the company places the pool in the ground, it must be filled with water. Unfortunately, the fence(s) is down for the digging equipment and for the pouring of the deck.



FIBERGLASS/ONE-PIECE POOL SHELL

ABOVE-GROUND POOLS

A permit for a prefabricated above-ground pool is not needed if the capacity does not exceed 5,000 gallons, unless any plumbing or electrical is run to the equipment.



ABOVE-GROUND POOL

TEMPORARY POWER POLE INSPECTION

These poles are usually located in a construction subdivision to prevent the use of generators. A separate permit is required for a temporary power pole. The utility company requires verification that the panel has been inspected and is safe to set a meter.



TEMPORARY POWER POLE FOR CONSTRUCTION

WATER HEATER CHANGEOUT INSPECTION

These inspections can look easy; however, there are many safety factors that can be overlooked.



WATER HEATER IN GARAGE

18 inches above the floor. Some exceptions apply; check the current plumbing code.

- If the water heater is located inside a house on a raised foundation, a watertight pan must be under the unit with a $\frac{3}{4}$ -inch drain line to the outside of the house. (It can't drain under the house.)
- *California Specific:* Seismic straps must be mounted to framing members and located at the upper and lower one-third of the unit with 4-inch minimum clearance to the controls.
- The listed metal gas appliance connector shall not exceed 3 feet in length with the shut-off valve located on the upside of the connector.
- A sediment trap on the gas line shall be installed.
- The temperature and pressure relief valve (drain pipe) shall be piped to the outside of the building. The pipe size must be at least the same size as the valve (usually $\frac{3}{4}$ inch). There should be no kinks or restrictions in the pipe. The end should terminate 6 inches to 24 inches from the ground and not be threaded or reduced or have a shut-off valve. The material of the pipe shall be galvanized steel, hard-drawn copper or CPVC.
- There should be a shut-off valve on the cold water supply at or near the water heater. Unions or flex connectors shall be installed in the water supply piping within 12 inches of the water heater.
- The exhaust vent piping of a gas water heater is usually reused. Check for clearances to combustibles and confirm that they have the required 3 sheet metal screws at the connections.
- Both hot and cold water pipes must be insulated for the first 5 feet from the top of the water heater. Check for proper clearances from the exhaust vent.
- Metallic water and gas pipes within a residence are connected together with electrical bonding wires and then grounded to prevent shock hazards should an energized electrical wire come in contact with the pipe. The #6 bonding conductor with brass clamps will typically take place at the water pipe and gas pipe of the water heater.

WATER SOFTENER INSPECTION

The water softener inspection would include the water softener only or the water softener with a reverse osmosis (R/O) drinking water treatment unit under the kitchen sink.



WATER SOFTENER IN GARAGE

GLOSSARY OF TERMS AND ACRONYMS

A

Abut

Joining the end of a construction member.

A/C

An abbreviation for air conditioner or air conditioning.

A/C condenser

The outside fan unit of the air conditioning system. It removes the heat from the freon gas and “turns” the gas back into a liquid and pumps the liquid back to the coil in the furnace.

Adobe construction

Construction using sun-dried units of adobe soil for walls. Usually found in the southwestern United States.

Aerator

The round, screened screw-on tip of a sink spout. It mixes water and air for a smooth flow.

Aggregate

A mixture of sand and stone; a major component of concrete.

Air-dried lumber

Lumber that has been piled in yards or sheds for any length of time.

Airspace

The area between insulation facing and the interior of exterior wall coverings. Normally a 1-inch air gap.

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About the Author

Mike Brinkman, CBO, MCP, CASp, has extensive knowledge of complex residential and commercial buildings and structures and all stages of construction. His extensive knowledge in enforcement of building, plumbing, electrical, mechanical and other codes as well as his keen understanding of necessary ordinances ensures proper construction and successful project delivery.



THANK YOU!

Mike Brinkman, CBO, MCP, CASp
Building Official, CSG Consultants
mikeb@csgengr.com



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