Basic Code Requirements for Commonly Asked Questions

Please be aware that these are basic requirements but any given situation could affect the specific code requirement.

Electric (National Electric Code) GFCI Residential Protection Requirements

1. Bathroom – all outlets protected
2. Garages – All outlets protected except overhead outlets
3. Storage Building/Pumphouses – All outlets protected
4. Outdoors – All outlets protected. All outlets installed in a weathertight box with a bubble cover.
5. Crawl Space – All outlets protected
6. Kitchen – All outlets protected that serve counter top surfaces
7. Laundry Area
8. Other sinks (not kitchen or bathroom) – All outlets protected within 6 feet.
9. Spas & hot tubs – Outlets protected which are the power source for the spa or hot tub. Other outlets and electrical fixtures may have to be protected if within a certain distance.

Note: Outlets which are dedicated appliance branch circuits may not have to be GFCI protected. Customer should check with the Building Department.

AFCI Protection Requirements

All branch circuits that supply 120-volt, single phase 15 and 20 ampere branch circuits supplying outlets installed in dwelling unit family rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms sun rooms, recreation rooms, closets, hallways or similar rooms or areas shall be protected by a listed arc-fault circuit interrupter, combination type, installed to provide protection of the branch circuit. All smoke detectors shall be on these branch circuits.

Electrical Service Panels (Panels listed or approved by a recognized agency)

1. Generally only one service box is permitted on a residential lot. (See specifics of calculating size – possibility of 400 amp services required)
2. A service disconnect is required within 30 feet of a manufactured house

Sub-Panel

1. A sub-panel in a manufactured home shall not service any other building or appliance outside of the manufactured house
2. Neutrals and equipment grounds shall be isolated in a sub-panel. This requires separate bus bars. This is required for garages and similar outbuildings or for any sub-panel

Electrical Wiring (Residential Only)

APPROVED WIRE SIZES					
SERVICE AND FEEDER WIRE					
COPPER			ALUMINUM		
AMPERAGE	WIRE TYPE	SIZE	AMERAGE	WIRE TYPE	SIZE
30	FEPW, RH, RHW, RUH, THW, THWN, THHW, XHHW,USE, ZW,UF	#10	40	FEPW, RH, RWH, RUH, TWH, THWN, XHHW, US, USE, ZW	#8
50		#8	50		#6
60		#6	60		#4
100		#4	100		#2
200		#2/0	200		#4/0
A compound shall be used for all aluminum wire connections at terminals. A four wire system is required for the electrical system installation. The neutral wire can be one size smaller than the (2) hot wires.					

1. Four wire systems are typically required for most installations. There are some exceptions to this rule.

2. Each wire shall be provided with overcurrent protection. The wire size must match the breaker size.

Grounding Electrodes (Rod) & Electrode Conductor

1. Ground Rod – Typically ½" copper clad, 8 feet in length
2. Grounding Electrode Conductor (Wire to Ground Rod)
   1. Shall be installed in approved conduit
   2. Sizes for copper electrode conductor*
      100 amp - #8
      200 amp - #4
      Typically a #6 bare copper wire in ½" conduit is acceptable in residential.
      *Sizes vary depending on wire sizes

Equipment Ground Wires – Minimum Sizes		
Service Size	Copper	Aluminum
100 amp	8	6
200 amp	6	4

Electrical Conduit

1. Underground conduit can be DB 60 and 120. All conduit above ground shall be an approved schedule 80 conduit
2. Wiring installed in conduit is required to be approved for underground or wet location.
3. Conduit shall be buried a minimum of 18" from finished grade.
4. Direct burial wire of Type UF, USE may be installed and buried a minimum of 24" from finished grade.
5. Note: The Building Department does inspect all underground installations.

Plumbing (Uniform Plumbing Code)

Gas Water Heater

1. Piping for overflow lines from the pressure relief valve are a minimum of ¾" and are required to be installed to the outside of the building.
2. Mobile home/manufactured house installations shall be labeled for mobile home/manufactured house use.
3. Direct vent or sealed combustion type shall be installed in bedroom closets, bathroom and some confined spaces. If the water heater was sealed combustion or direct vent it should be replaced with the same type.
4. Installed to the manufacturer's instructions and the Uniform Plumbing Code.

Sewer Pipe

1. Typically ABS or DWV are the only piping permitted within a building. The vent piping is also the same type of piping.
2. Other exterior piping used as the building sewer line can be SDR or approved piping marked "sewer". This is stubbed near the foundation of the home and the ABS or DWV connects to the building sewer. SDR can be installed under a manufactured home otherwise SDR must stop outside foundation wall.
3. Sewer lines are required to be buried a minimum of 12". A ¼" per foot fall is required on all sewer piping.
4. Sewer piping generally shall not be in the same trench as the water or cross each other.
5. Use the same type fitting as the piping. All 45° fittings should be the long sweep type.
6. Cleanouts are required in certain locations.
7. Sewer lines are inspected by the Building Department.
8. Note: Typically building sewer lines are 4" for residential, however size is based on the amount of fixtures.

Water Pipe

1. PVC water piping is permitted underground only.
2. Through foundation walls and under a building CPVC, PEX, copper and galvanized is approved.
3. Water lines are required to be buried a minimum of 36" from finished grade. The 36" is maintained under the footing.
4. Water and electrical can be in the same trench with a 12" separation required.
5. Note: Water piping for main to a residence is a minimum of ¾", however the amount of fixtures determines the size.
6. Water lines are inspected by the Building Department

Heating & Cooling Appliances

1. Shall be installed to the manufacturer's instructions and the Uniform Mechanical Code.

Gas Piping

1. This office recommends obtaining the specific information from the Building Department. The requirements vary from a manufactured house to a building.

Tie Downs For Manufactured Housing

1. Humboldt County will require a state approved tie down. The different tie downs vary from manufacturers. The minimum requirement is a 30" auger type. These do require a special machine to install. Stabilizer plates are required with the tie down system. The cross drive system unless approved for soil type will not be permitted.

Smoke Detector & Carbon Monoxide Requirements

1. These requirements vary from new construction to existing houses. New construction requires permanently wired detectors with battery backup. The smoke detectors shall be located in each sleeping room, in the area giving access to the sleeping rooms, basements, and each story. The carbon monoxide detectors shall be located outside each sleeping area.

Address Numbers

1. Temporary Address
   - A. Prior to your first inspection being scheduled you are required to post a temporary address.
   - B. The temporary address shall be easily readable and placed on the property line facing the principle street
2. Permanent Address
   - A. Before a final inspection is called for a permanent address shall be posted.
   - B. Permanent addresses shall be a minimum of 4" high and posted in a prominent and conspicuous location facing the principle street on which the address is based.
   - C. For buildings that sit further than 80 feet from the property line the address numbers shall be of sufficient size to be easily viewed or the address shall be placed at the front entrance to the property.

Dryer Duct Requirements (International Residential Code)

1. All dryers are required to be ducted to the outside of the building.
2. Dryer ducts over 6 feet in length shall be metal smooth on the interior and shall not exceed a total combined horizontal and vertical length of 25 feet or manufacturer's instructions

Permit Requirements

1. Generally permits are required for the following.

a. All buildings – exception: Residentially detached outbuildings less than 200 square feet and are more than 6 feet away from any other building. The 200 square foot building is permitted to have a maximum of 12" eave overhang.

b. A pumphouse shall be provided to protect the pressure tank, water and electrical installations. IRC Section 105.2 exempts pumphouses less than 200 square feet from requiring a permit, however this sections also states "Exemption from the permit requirements of this code shall not be deemed to grant authorization for any work to be done in any manner in violation of provisions of this code or any other laws or ordinances of this jurisdiction." This requires the materials to be rot resistant and weatherproof. The structure itself must be structurally sound. All plumbing lines and fixtures shall be protected from freezing by approval materials. Electric shall be mounted on a permanent wall or pole (pressure treated). All outlets installed in pumphouses and shall be GFCI protected. The pumphouse may require permits. Check with the Building Department. The electrical installations require permits.

c. Foundations
d. Garages/Pole Buildings
e. Awnings or roof covers
f. Reroofs
g. Porches
h. Decks or platforms over 30" from finished grade
i. Retaining walls
j. Woodstoves/Pellet Stoves
k. New heating or air conditioning units.
l. New electrical services or fixture installation
m. New or replaced gas lines – any building
n. New or replaced plumbing water or sewer lines
o. New water heater in a manufactured home
p. Manufactured houses/mobile homes
q. Recreational vehicles
r. Canvas buildings over 250 square feet.
s. Remodeling, repairs, additions, alterations, moved, and demolition of any building
t. Irrigation systems

Please contact us with any questions or feel free to call us anytime at 623-6322. There are handouts available for most types of installations