



RESIDENTIAL CONSTRUCTION INFORMATION PACKET

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Building Inspection

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A. GENERAL REQUIREMENTS

1. Plan Review/Permit Submittal

All plan submittals that are not master plan submittals must contain the documents listed below. Regular permit applications will generally be reviewed within five (5) working days.

One (1) complete set of drawings and One (1) Digital set that include the following:

- a. Site plan indicating all property lines, easements, driveway and setbacks of the proposed building.
 - b. Window and door sizes.
 - c. Elevation drawings showing exterior wall construction and masonry percentage calculations.
 - d. One (1) structural foundation drawing stamped by a professional engineer licensed by the State of Texas. Stamping of plans must conform to Texas Engineering Board guidelines by including the FIRM number and title block of the engineer.
 - e. One original letter from the same engineer that designed and sealed the foundation plans stating that the foundation was designed for the soil conditions on that particular lot. The letter must also state that the foundation design criteria complies with the minimum standards required by the 2012 International Residential Code.
 - f. Energy calculations from REScheck or IC3 software indicating that the building complies with 2015 IRC energy requirements. In the case of a remodel, you may utilize the minimum requirements contained in Table N1102.1 of the 2009 IRC. This table requires the following: Windows must have a U-Factor of .50 or better and a SHGC of .35 or better. Walls must have an R-Value of 13 or better and ceilings must have an R-Value of 30 or better. You must specify on the permit application that you will comply with this requirement. Please note that REScheck and IC3 calculations will allow for trade-offs while the table does not.
2. No construction, other than setting form boards and lot grading, may begin until a building permit has been issued.
 3. No tracked vehicles will be allowed on streets and alleys after a subdivision has been accepted.
 4. Instruct all subcontractors and their employees to park in such a way that emergency vehicular traffic will not be obstructed, i.e., fire trucks and ambulances.
 5. Building addresses must be posted in a location that is conspicuous from the street on each lot at all times. Numbers must be a minimum of four inches (4") in height.
 6. Addresses must be posted on all temporary electrical poles.
 7. Because of serious safety considerations, citations will be issued to the job superintendent, electrician or an officer of the general contractor or electrical contractor if temporary power is tied directly into the permanent breaker box. Electricians are permitted to test house circuits provided that a licensed electrician is on site at all times while power is connected to the house.
 8. All re-inspection fees must be paid prior to the request of any further inspections. When a re-inspection is requested on a project and a re-inspection fee has not yet been paid, the inspection will be canceled in the office.
 9. Portable restrooms are required prior to starting foundation.

B. GENERAL INSPECTION NOTES

1. All inspections must be requested by calling (903) 464-0173. Inspections requested prior to 10:00 am will be performed the same day. Inspections requested after 10:00 am will be performed the next business day. Inspections for utility releases for occupied homes may be requested by calling 903-464-4456.

Direct Telephone Numbers for Inspectors are:

Betty Floyd

903-465-2720 ext. 2459

Rodger McBride

903-465-2720 ext. 2458

Jonathan Loiselle

903-465-2720 ext. 2463

2. For general questions and for permit information, you may call the office at (903) 465-2720.
3. **Re-inspection Fees.** A re-inspection fee will be assessed and no inspection performed when any of the following conditions apply:
 - a. The inspection requested is not ready when the inspector arrives.
 - b. The permit packet or the address of the site is not posted.
 - c. City approved plans are not on site and available to the inspector.
 - d. The building is locked or the site is not accessible for inspection when the inspector arrives.
 - e. The work is red tagged for the same item(s) twice.
 - f. The original red tag has been removed from the site.
4. Re-inspection fees are **\$50.00**. Re-inspection fees must be paid before any further inspections can be performed.
5. City approved building plans must be available on the job site when all inspections are conducted.
6. **Materials located in the right-of way.** All dirt, sand or any type of construction material must be located in such a way as to comply with the following requirements.
 - a. If no City sidewalk has been constructed on the property, all construction materials must be located at least five feet (5') from the back of curb to allow for pedestrian passage through the property.
 - b. If a sidewalk does exist, construction materials must be placed behind the sidewalk.
 - c. At all times during construction, the water meter box must be installed around the water meter.
7. **Location of Permit Packets and Inspection Tags.** In order to allow for uniformity and the most efficient use of time, permit packets must be on the construction site at the location specified below. Inspection tags will be placed inside the permit packet by the inspector once the inspection is completed. The inspection tag must remain where left by the inspector until the inspection is approved.
 - a. **T-Pole, Plumbing Rough & Foundation** – The permit packet must be located in plain sight (such as attached to the T-pole).
 - b. **Top-Out Frame, Utility Final & Building Final** – The permit packet must be adjacent to the front door of the house.
8. **Engineering Letters and Other Required Documents.** Whenever an engineering letter or other document is required, the original letter must be placed inside the permit packet and visible from outside of the packet. This will allow the inspector to refer to the letter in order to verify compliance with the requirements of the engineer.
9. **Cancellations.** Inspections should not be requested until the contractor has verified that the work is complete and ready for inspection. Should an inspection need to be cancelled, call 903-464-4456.

C. RESIDENTIAL INSPECTIONS REQUIRED

Each of the following inspections must be requested. Inspections required are:

1. **Temporary Pole** (can be done at any time)
2. **Piers** (if installed) – The Engineer of record or a testing lab approved by the Building Official can verify that the piers comply with the approved drawings. Reports must be submitted prior to approval of the foundation inspection.
3. **Flatwork** (can be done at any time prior to Utility Final)
4. **Plumbing Rough**
5. **Foundation**
6. **Mechanical Rough** (Can be done at the same time as the Electrical Rough and Plumbing Top Out)
7. **Electrical Rough** (Can be done at the same time as the Mechanical Rough and Plumbing Top Out)
8. **Plumbing Top-Out** (Can be done at the same time as the Mechanical Rough and Electrical Rough)
9. **Frame** (The Mechanical Rough, Electrical Rough and Plumbing Top-Out inspections must be approved before requesting the Frame inspection)
10. **Energy Insulation**
11. **Utility Final**
12. **Mechanical Final** (Can be done at the same time as Electrical and Plumbing Final)
13. **Electrical Final** (Can be done at the same time as the Mechanical and Plumbing Final)
14. **Plumbing Final** (Can be done at the same time as the Mechanical and Electrical Final)
15. **Building Final** (The Mechanical, Electrical and Plumbing Finals must be approved before requesting the Building Final inspection)
16. **Energy Final** (Can be done at the same time as the Building Final)

D. RESIDENTIAL INSPECTION REQUIREMENTS

1. TEMPORARY POWER POLE

- a. Double pole/single throw breaker installed for 240-volt plug.
- b. Single pole breaker installed for 120-volt plug with GFCI protection on all 120-volt receptacles.
- c. Box is to be secured to the pole.
- d. Pole is to be braced, secure and stable.
- e. A ground rod must be installed with a ground wire that is a minimum size of 6 AWG.
- f. The licensed electrician can test house circuits provided that power is disconnected when the electrician leaves the site.
- g. Legible address numbers must be posted on the T-pole. Numbers must be at least four inches (4") in height.
- h. No holes are allowed in the panel face.
- i. Plugs outside the panel box must be weatherproof.
- j. All breakers and receptacles must have legible amperage/voltage markings.

2. FLATWORK

Flatwork includes all driveways and approaches within the public right-of-way.

- a. The City must inspect all sidewalks, driveways, and approaches within the public right-of-way.
- b. All flatwork must be reinforced with steel. City walks are required to have a minimum of three-eighths inch (3/8") rebar at twenty-four inches (24") on center transversely and eighteen inches (18") on center longitudinally with expansion joints at forty feet (40') on center.
- c. Approaches off of alleys must have a depth of six inches (6") and be reinforced with #3 bars eighteen inches (16") on center each way to the property line. Alley approaches must have a turn radius of six feet (6'). The alley must be doweled eighteen inches (18") on center with #3 bars that extend at least six inches (6") into the alley. Do not install an expansion joint at the alley. An expansion joint will be required at the property line.
- d. Approaches off of a street must have a depth of six inches (6") and be reinforced with #3 bars sixteen inches (16") on center to the property line. A turn radius of two feet (2') is required. The street must be doweled eighteen inches (18") on center with #3 bars that extend at least six inches (6") into the street – or existing street steel may be used. An expansion joint will be required at the sidewalk. Do not install an expansion joint at the street.
- e. Decorative concrete may be installed only on private property. Any concrete work done within a street or alley easement must be completed with a brush finish.
- f. The minimum width for a driveway is ten feet (10').

3. PLUMBING ROUGH

No plumbing rough inspections will be made if it has been determined that it is too wet.

a. Water Lines

1. One hose bibb with non-removable vacuum breaker must be installed in the water line to check the pressure on the copper.
2. All hose bibbs must have non-removable vacuum breakers installed at all times.
3. A one-inch (1") line supply will be required when supplying over nine and one-half (9.5) fixture units per the IRC. One-inch (1") lines cannot supply more than thirty-two (32) fixture units.
4. Copper lines will not be allowed to touch each other.
5. Lead solder and fluxes containing lead cannot be used to join potable water lines.
6. All lines under the slab must be type "L" copper or thicker. PEX piping may also be used underneath the slab.
7. All piping located under the slab must be continuous with no joints.
8. The water meter must be in place with all valves open to allow for testing of the lines at City water pressure. If City water is not available, a 50 p.s.i. air test can be substituted for the water test. A valid air test will not have any water in the lines.
9. Where a water service crosses a sewer ditch, the water line must be installed in a PVC sleeve.

b. Sanitary Sewer

1. Cell Core piping is not allowed for drain, waste or vent plumbing within the City of Denison.
2. The plumbing rough must be tested with a five-foot (5') head of water at the most upstream stack.
3. The main objective of a water test is to allow the inspector to look for wet spots along the plumbing piping. Overfilling the stacks to the point that the ground is wet around sewer piping will cause the inspection to fail.
4. Double clean outs must be installed.

5. All lines must rest on a two inch (2") bed of sand and all lines, traps and fittings must be completely exposed.

4. FOUNDATION

All foundation plans must be sealed by a structural engineer. A minimum of two (2) string lines must be run across the top of the forms to allow inspectors to measure the depth of the concrete. (Exception: Structures that are 5,000 square feet or less and are not post tension, do not require a structural engineer stamp unless required by the Building Official).

No concrete inspections will be made if it has been determined that it is too wet. All rained out inspections must be recalled.

a. Post Tension

1. Everything must conform with the engineered plans with no addition or subtractions to the approved plans.
2. Anchor bolts or straps must be in place and all cables must be straight.
3. All copper must be sleeved or taped. Painted copper will not be accepted.
4. Cable ends must be a minimum of six inches (6") below the top of the forms.
5. Cable ends must be a minimum of six inches (6") from the corners.
6. Cable insulation must cover the cable to within three inches (3") of the cable ends.
7. The post tension drawing must be on the job with the detail sheet and the plot plan (both must be City stamped).
8. Cables that must be re-routed to miss plumbing fixtures must be done with long sweeping curves of the cable.
9. Electrical conduit located in the foundation must be installed.
10. Down draft kitchen exhaust ducts must be installed (if being utilized).
11. All gas line sleeves must be installed.
12. Original finished floor elevation surveys, if required, and engineering letters verifying required piers were installed according to design must be submitted prior to requesting the inspection.
13. No changes can be made to the foundation after inspection approval without requesting another foundation inspection.
14. Poly must cover all pad areas only. Poly is to be cut or not installed in beams.
15. A water test with city pressure or a minimum of fifty (50) p.s.i. air pressure must be maintained on the water supply lines. Sanitary drain lines must be under water test.
16. All tub boxes must be installed.
17. Sewer lines must run at 90 degree angles to grade beams.
18. Water heater T & P lines cannot be composed of PVC material and cannot be installed in slab.
19. Sewer tap holes must be filled immediately after approval of the Plumbing Rough inspection. If the Foundation inspection is requested and performed prior to filling of the hole, the inspection will be classified as not ready and a re-inspection fee will be assessed.
20. A concrete encased electrode must be installed. Concrete encased electrodes must extend at least 20 feet through the concrete. The preferred method is to use a #4 rebar that is at least 20 feet long (you can splice more than one piece of rebar together to get the 20 foot length as long as the bars are adequately tied together. Near the panel box, bend the bar to that it extends through the location of the bottom plate and extend about 2 feet through the bottom plate. At the electrical rough, extend the ground wire from the main panel to the rebar and clamp the ground wire to the rebar.

b. Rebar

1. Work must conform to approved plans.
2. Poly must cover all pad areas only. Poly is to be cut or not installed in beams.
3. Anchor bolts or straps and chairs must be in place.
4. Electrical conduit located in the foundation must be installed.
5. Down draft kitchen exhaust ducts must be shown on approved foundation plans and installed according to the mechanical code.
6. All gas line sleeves must be installed.
7. Original finished floor elevation surveys and engineering letters verifying required piers were installed according to design must be submitted prior to requesting the inspection.
8. No changes can be made to the foundation after inspection approval without requesting another foundation inspection.
9. All tub boxes must be installed.
10. Sewer lines must run at ninety (90) degree angles to grade beams.
11. All copper must be sleeved or taped. Painting of the copper will not be accepted.
12. Water heater T & P lines cannot be composed of PVC material and cannot be installed in slab.
13. Water and sewer line tests are required (same as in post tension).
14. A concrete encased electrode must be installed. Concrete encased electrodes must extend at least 20 feet through the concrete. The preferred method is to use a #4 rebar that is at least 20 feet long (you can splice more than one piece of rebar together to get the 20 foot length as long as the bars are adequately tied together. Near the panel box, bend the bar to that it extends through the location of the bottom plate and extend about 2 feet through the bottom plate. At the electrical rough, extend the ground wire from the main panel to the rebar and clamp the ground wire to the rebar.

5. MECHANICAL ROUGH

- a. Metal ducts shall be screwed, joint mastic applied and inspected before insulation.
- b. Flexible ducts shall be supported with material at least one and one-half inches (1½") wide. Maximum spacing for supports is four feet (4'). Some manufacturers require supports every two feet (2'). Turns must be made in such a way that the airflow is not deterred.
- c. A minimum one-inch (1") clearance must be maintained around gas appliance vents. Air conditioning condensate drains must drain into a wet trap. Where air-conditioning condensate drain pans are located in an attic, a secondary drain must be installed with the condensate line discharging over a window, door, patio or other approved location.
- d. Condensate drain lines must be a minimum of three-fourth inch (¾") in diameter.
- e. Bath exhaust fan ducts must extend to the outside of the building. Where a fan is installed in a toilet room with a door, a second fan will be required in the room with the bathtub or shower.
- f. Horizontal runs on gravity type water heater and furnace flue vents must not exceed seventy-five percent (75%) of the height of the vent.
- g. Dryer vents are limited to a maximum length of thirty-five feet (35'). The thirty-five foot (35') length includes two (2) ninety degree (90°) fittings. Additional fittings over and above the two (2) allowed will reduce the maximum length of the vent by two feet (2') for every ninety-degree (90°) fitting (or combination of fittings that total 90°). Dryer vent connections must be taped and not screwed.
- h. Dryer vents extending through a roof must include a tight fitting collar to keep lint from falling back into the attic. Where the exhaust duct is concealed within the building construction, the equivalent length of the exhaust duct shall be identified on a permanent label or tag. The label or tag shall be located within 6' of the exhaust duct connection.(M1502.4.5)

- i. Duct material for vent fans must be listed for the use. Plastic dryer vent material will not be allowed for permanently installed vent ducts.

6. ELECTRICAL ROUGH

- a. Romex must be stapled every four and one-half feet (4 1/2').
- b. Romex must be stapled within twelve inches (12") of all boxes.
- c. Romex extending through masonry must be protected by conduit.
- d. Sheathing on Romex must extend a minimum of one-fourth inch (1/4") into the box.
- e. Wire must be clamped to metal boxes.
- f. Two (2) separate 20-amp circuits must be run for kitchen use. No fixed appliances other than a refrigerator may be put on these circuits.
- g. Access to the concrete encased electrode must be installed
- h. A separate 20-amp laundry circuit must be supplied. No other outlets will be allowed off of this circuit.
- i. All receptacles located outside the building, in a garage, in a bathroom, serving a kitchen countertop and receptacles within 6 feet of any other sink must be protected by a ground fault circuit interrupter.
- j. All circuits that are not GFCI protected must be ARC fault protected.
- k. Where a panel or disconnect device is tapped more than one time, approved lugs shall be provided.
- l. Armored cable (bx) shall not be used or installed in the City as a wiring method unless it has a full size grounding conductor.
- m. If service entrance conductors are more than three feet (3') in length, overcurrent protection must be provided at the outside of the structure and next to the electrical meter.
- n. All 240-volt appliances must be wired with a four (4) wire system that includes a neutral and a separate ground.
- o. Electrical wiring installed through a bored hole must be protected by a steel plate at least 1/16" thick if the edge of the hole is less than 1 1/4" from the edge of the wood member.
- p. All metal boxes must be bonded by a listed means (no wood screws).
- q. CSST manifolds must be properly bonded per manufacturer's specifications.
- r. Cables cannot be bunched together and run through a knockout or chase nipple into an electrical panel. Individual cable clamps or connectors are required to be used with only one cable per clamp or connector – unless the clamp or connector is identified for more than a single cable.
- s. Circuits installed in or under a concrete foundation must meet the requirements of wet locations. This included kitchen island circuits.
- t. Receptacles located in kitchen counter tops cannot be used to take the place of required wall receptacles.
- u. The neutral conductor must be installed in switch boxes.
- v. Circuits for smoke detectors must be roughed in. Smoke detectors must be located in each sleeping room and outside of each sleeping area in the immediate vicinity of the sleeping area. Additionally, at least one smoke detector is required on each story of a building. Smoke detectors must be interconnected so that if the alarm sounds on one detector, it triggers the alarm of all of the smoke detectors in the house.
- w. Circuits for carbon monoxide detectors must be roughed in. Carbon monoxide detectors must be located outside of and in the immediate vicinity of each sleeping room.

7. PLUMBING TOP-OUT

a. Water

- 1. All copper lines must be braced.

2. T & P lines must be composed of hard drawn copper, CPVC or PEX. T & P lines cannot be composed of PVC material and cannot be installed in slab.
3. All T & P lines must have positive fall towards the outlet of the line. The end of the line must have a ninety (90) degree fitting attached that is pointing down toward the ground. The outlet of the line must terminate between six inches (6") and twenty-four inches (24") from the top of the ground. Each water heater must have its own line. T & P lines from separate water heaters cannot be tied together.
4. Frost proof hose bibbs with non-removable vacuum breakers must be installed.
5. Lead solder and fluxes containing lead are prohibited materials for use in potable water pipes.
6. All lines within one inch (1") of the edge of a stud or plate must be strapped with a 1/8 inch thick by 1-1/2 inch wide strap. The strap must be nailed to the stud of plate.
7. All water lines in unheated areas must be insulated with a minimum of 3/4" pipe insulation.
8. All copper located in the brick ledge must be wrapped.

b. Sewer

1. Cell Core piping is not allowed for drain, waste or vent plumbing within the City of Denison.
2. All fixtures must be stack vented and all vents must extend through the roof with flashing installed at the roof and at least 1 foot from any wall, at least 6 inches above the roof and at least 10 feet from any openable window.
3. A top-out water test is required for all plumbing utilizing a stack that is full to overflowing.
4. No vents may be less than 45 degrees from the horizontal until they are at least six inches (6") above the flood rim of the fixture.
5. Plumbing vents must terminate at least ten feet (10') from or two feet (2') above any window that can be opened.
6. Water heaters must have a drip pan with a drain line to the outside of the building.
7. Water heater T&P lines and pan drain line must be roughed in from the water heater location to the outside of the building.
8. All lines within one inch (1") of the edge of a stud or plate must be strapped with a 1/8 inch thick by 1-1/2 inch wide strap. The strap must be nailed to the stud or plate.
9. Vents must terminate at least 10 feet from – or at least 3 feet above any openable window, opening or air intake.
10. Support horizontal runs of PVC piping every four feet (4') on center.
11. Tubs and shower pans must be supported from underneath.
12. Condensate lines that tie into a washer box must be tied in above p-trap.
13. All drain lines must have a slope of at least one-quarter inch (1/4") per foot.
14. Air admittance valves are not allowed unless approved by the Building Official prior to installation.
15. Island loop vents must utilize the following fittings in the order listed: a 45° fitting, a short-turn 90° fitting and a 45° fitting.

c. Gas Lines

1. Where a gas piping system is utilized that contains a working pressure greater than 1/2 p.s.i., an air test of at least ten pounds per square inch (10 p.s.i) on a diaphragm gauge that has a set hand and has a maximum range of fifteen (15) p.s.i. is required. For portions of CSST piping that are regulated to a working pressure of less than 1/2 p.s.i, a 3 psi test with a diaphragm gage that has a set hand and has a maximum range of six (6) p.s.i. is required.
2. Holes cut for gas lines must only be large enough for the line to penetrate.

3. Gas lines must be properly supported.
4. Gas lines located between bricks and studs must be wrapped for protection.
5. All gas outlets must have approved gas stops installed along with caps.
6. Gas vents must terminate at least 4 feet from any wall.
7. CSST manifolds must be properly bonded per manufacturer's specifications.

8. FRAMING

- a. Rafter and joist spans must conform to the 2012 International Residential Code (see attached span chart for specific wood species allowances).
- b. Exterior bottom plates must be secured to the foundation by anchor bolts 7" into the foundation (washers and nuts must be tight) or ICC approved ramsets. Ramsets must be shot every eighteen inches (18") and within six inches (6") of every end of each exterior plate. Ramsets must include a metal washer.
- c. Top plate splices must be offset a minimum of twenty-four inches (24").
- d. Rafters must be framed directly opposite each other at the ridge. The size of the ridge must be so that it is not less in depth than the cut end of the rafter.
- e. Valleys and hip rafters must not be less than two inches (2") nominal thickness and not less in depth than the cut end of the rafter.
- f. Rafter, hip and valley splices must be spliced as follows. The spliced member must have a dove tail or an angle cut with a brace directly under the splice running to a load bearing wall. One side of the splice must remain open to allow the inspector to verify that the proper cut is made on the splice. The opposite side of the side left open must have a scab piece spray nailed to the spliced member that is the same size as the hip, rafter or valley. The scab piece must be long enough to extend at least two feet (2') beyond both sides of the splice.
- g. Where studs are spaced more than sixteen inches (16") on center, rafters, joists and trusses must bear within 5 inches (5") of the studs underneath.
- h. All studs supporting second stories and roofs must be a minimum No. 3, standard or stud grade lumber. Utility grade studs may be used if all of the following apply: the studs are spaced not more than sixteen inches (16") on center, the studs do not support more than a roof and ceiling, and the studs do not exceed 8 feet in height for exterior walls and loadbearing walls or ten feet (10') for interior non-load-bearing walls.
- i. Studs must have full bearing on the bottom plate.
- j. Purlins must be the same size as the rafter that it supports. Struts must be installed every four feet (4') from the purlin to the wall or beam at no more than a forty-five degree (45°) angle. Struts longer than eight feet (8') in length must be T-braced.
- k. Joists over four feet (4') in length must be pressure blocked on one side only with nails driven from the joist into the pressure block – or a joist hanger must be used.
- l. Fur downs, chimneys, ceiling of different heights, and vertical wall spaces over ten feet (10') must be fire blocked. Poly sealing small holes and gaps in fire blocks will be acceptable.
- m. All lumber must be grade stamped. Unstamped lumber is unacceptable as a structural framing member.
- n. Where ceiling joists support air handling units, skylights, etc., those joists will be calculated as floor joists. Where air handling units are supported by rafters, those rafters must be doubled.
- o. There will be a two-inch (2") gap between fireplace material and wood studs of any other combustible material as required by the IRC.
- p. **Stairways**
 1. **Width.** Stairways must be at least thirty-six inches (36") wide. A handrail is required on at least one side of each continuous run of treads or flight with four or more risers.

2. **Handrails.** Handrails must be no less than thirty-four inches (34") and no more than thirty-eight inches (38") measured from the sloped plane adjoining the tread nosing, or the finish surface of the ramp slope of the stairs. Handrails for stairways must be continuous for the full length of the flight, from a point directly above the top riser of the flight to a point directly above the lowest riser of the flight. Handrail ends must be returned or terminate in newel posts or safety terminals. Handrails adjacent to a wall must have a space of not less than one and one-half inches (1¹/₂") between the wall and the handrail. **(2x4 and 2x6 on end do not meet this requirement)**
3. **Riser Height.** The maximum riser height of any stair is seven and three-quarter inches (7³/₄"). The measurement must be taken between the leading edges of the adjacent treads. The greatest riser height within any flight of stairs must not exceed the smallest by more than three-eighths inch (3/8").
4. **Tread Depth.** The minimum tread depth of any stair is 10 inches (10"). The tread depth is measured horizontally between the vertical planes of the foremost projection of the adjacent treads and at a right angle to the tread's leading edge. The greatest tread depth within any flight of stairs shall not exceed the smallest by more than three-eighths inch (3/8").
5. **Winders.** Winder treads must have a minimum tread depth of ten inches (10") measured at a point twelve inches (12") from the side of the stairs where the treads are narrower. Winder treads must have a minimum tread depth of six inches (6"). The greatest winder tread depth at the twelve inch (12") walk line must not exceed the smallest by more than 3/8 inch.
6. **Stairway Walking Surface.** The walking surface of treads and landings of stairways must not be sloped any steeper than one vertical unit in 48 inches horizontal (2 percent slop).
7. **Landings.** A floor or landing is required at the top and bottom of each stairway. (A floor or landing is not required at the top of an interior flight of stairs, provided a door does not swing over the stairs) A flight of stairs cannot exceed a vertical height of twelve feet (12') between floor levels or landings. The width of each landing must be no less than the width of the stairway. Every landing must have a minimum dimension of thirty-six inches (36") measured in the direction of travel.
- q. Masonry fireplaces must be completed to a point one foot (1') above the damper.
- r. Any brick on wood must comply with the City's brick on wood policy. As an option, a design may be submitted by a structural engineer for the brick on wood support.
- s. Brick wall ties must be installed.
- t. All penetrations in top plates must be sealed. Small penetrations may be poly sealed.
- u. Holes in exterior sheathing must be sealed.
- v. Covered porches and patios must be inspected to verify proper structural framing prior to installing fascia material.
- w. Cutting, notching or boring of engineered beams is not allowed without a letter from a structural engineer.

9. **ENERGY INSULATION**

- a. All wall insulation must be installed per the RESCheck or IC3 energy calculation. In the case of a remodel, you may utilize the minimum requirements contained in Table N1102.1 of the 2009 IRC.
- b. All windows and doors must meet the minimum requirements contained in the RESCheck or IC3 document.

10. UTILITY FINAL

a. Electric

1. All wires must be terminated with a receptacle, switch, appliance or fixture -- or all wire ends must have wire nuts and placed in an electrical box with a blank cover installed. If appliances and fixtures are on site, all electrical connections to those appliances or fixtures must be complete.
2. Cover must be off of the main electrical panel.
3. All required grounds must be installed. If a cold water ground is utilized, you must also have a supplemental ground such as an eight foot (8') ground rod. Concrete encased electrodes must have an access cover exposing the connection of the ground wire to the rebar. All ground clamps and connections are to be tight.
4. Neutral and ground conductors must be properly coded and identified.
5. The meter base must be bonded to the main panel box. If metal conduit is installed between the meter and the main panel, the conduit will serve as the bond. If plastic conduit is used, a bond bushing will be required.
6. Feeder wires and branch wires must be protected by the proper sized breaker or fuse.
7. All receptacles and switches must be installed.
8. Bare bulb incandescent lights must not be installed in closet storage areas. Incandescent lights in closet areas must be located at least twelve inches (12") from any shelf. Fluorescent lights in closets must be installed at least six inches (6") from any shelf.
9. All light fixtures located within thirty-six inches (36") horizontally and less than eight feet (8') of the lip of a bathtub or shower must be waterproof.
10. CSST manifolds must be properly bonded per manufacturer's specifications.
11. Cable and phone grounding bars must be installed.

b. Gas

1. Where a gas piping system is utilized that contains pressure greater than $\frac{1}{2}$ p.s.i., an air test of at least ten pounds per square inch (10 p.s.i) on a diaphragm gauge that has a set hand and has a maximum range of fifteen (15) p.s.i. is required. For portions of gas piping that are regulated to less than $\frac{1}{2}$ p.s.i., a 3 psi test with a diaphragm gage that has a set hand and had a maximum range of six (6) p.s.i. is required.
2. Gas stops at each appliance must be properly secured for all types of piping including CSST systems.
3. All gas lines must be connected. Gas stops and caps must be installed on any gas line for future use.
4. CSST manifolds must be properly bonded per manufacturer's specifications.

11. MECHANICAL FINAL

- a. Each combustion air vent must be a minimum of one cubic inch for every 4,000 BTU of the appliance rating. (A 40,000 BTU water heater will require a ten (10) square inch vent in the bottom twelve (12) inches of the closet and a ten (10) square inch vent in the upper twelve (12) inches of the closet.
- b. A mechanical heating system must be operational that is capable of maintaining a temperature of 68 degrees Fahrenheit (68°) at a point that is three feet (3') above floor level and two feet from exterior walls. The installation of one or more portable space heaters shall not be used to achieve compliance with this requirement.
- c. Vent fans must be operational in bath and utility rooms. Where a water closet is separated from the shower area by a door, the fan is required to be installed in the shower area.

- d. A solid walkway at least twenty-four inches (24") wide must be installed from attic openings to furnaces, water heaters and gas regulators. The distance from the opening to the equipment cannot be any further than twenty feet (20'). A thirty-inch (30") working platform is also required directly in front of the equipment.

12. ELECTRICAL FINAL

- a. The electrical meter must be installed. No inspection will be performed until the electrical meter is installed.
- b. All receptacles must be wired properly. All light fixtures must be installed.
- c. All GFCI's must be installed and working properly.
- d. A permanent electrical outlet and light fixture controlled by a switch located at the required attic opening must be provided at or near air-conditioning and water heater equipment.
- e. All areas requiring illumination must be switched with a wall type switch.
- f. Circuits must be labeled in breaker box.
- g. The Jacuzzi access panel must be removed for inspection.
- h. Sprinkler wires located in garages must be strapped.
- i. All electrical outlets located in garages are required to be GFCI protected.
- j. Floor outlet receptacles must be accessible.
- k. Jacuzzi access panels must be at least 12" X 12" with clear access to the motor (no pipes, wires, etc.). The opening must also be close enough to reach the motor in order to do maintenance on it and large enough to remove the motor for repair or replacement.
- l. All HVAC equipment must have an electrical disconnect within site of the equipment served.
- m. Water Heaters must have an electrical disconnect within site of the water heater.
- n. All receptacles located outside the building, in a garage, in a bathroom, serving a kitchen countertop and receptacles within 6 feet of any other sink must be protected by a ground fault circuit interrupter.
- o. All circuits that are not GFCI protected must be ARC fault protected.
- p. Interior receptacles shall be tamper resistant, exterior shall be weather resistant.
- q. Incandescent lights installed in a closet must be at least 12 inches from the plane of the shelf and not just measured to the shelf itself. Fluorescent lights must be installed at least 6 inches from the plane of the shelf. LED lights can be installed at any location within the closet.

13. PLUMBING FINAL

- a. The gas meter must be installed. No inspection will be performed until the gas meter is installed.
- b. All gas lines must be connected. Gas stops and caps must be installed on any gas line installed for future use.
- c. All plumbing fixtures must be installed. Any drain or water line that is installed for future use or expansion must have permanent caps.
- d. Frost proof hose bibbs with integral vacuum breakers must be installed.
- e. Sewer cleanouts must be cut so that the top of the cleanout is between one inch (1") and two inches (2") from the top of the ground.
- f. Hot water must correspond to the left side of fittings on plumbing fixtures.
- g. Dielectric unions must be installed within twelve inches (12") of regulation equipment, water heaters, conditioning tanks, or other similar equipment. Flexible water connectors with dielectric nipples can be used in place of unions.
- h. PVC vent stacks must be painted with latex paint.
- i. Air gap fittings must be installed on all dishwashers.
- j. Shower doors must have a minimum opening clearance of twenty-two inches (22").

14. BUILDING FINAL

- a. All work is to be complete.
- b. A solid walkway at least twenty-four inches (24") wide must be installed from attic openings to furnaces, water heaters and gas regulators. The distance from the opening to the equipment cannot be any further than twenty feet (20'). A thirty-inch (30") working platform is also required directly in front of the equipment.
- c. Chimneys must extend at least two feet (2') above any point within ten feet (10') of the roof.
- d. Street, alley, and all flatwork must be clean and clear of mud and debris.
- e. Yard must be clear of debris and final grade completed.
- f. A solid core door must be installed between the garage and living area.
- g. A permanent address of at least 4" must be installed on the front and rear of the house (rear address is only required when driveway access is provided from the alley) with numbers of contrasting color to background.
- h. Hard wired smoke detectors with a battery backup must be located in each sleeping room and outside of each sleeping area in the immediate vicinity of the sleeping area. Additionally, at least one smoke detector is required on each story of a building. Smoke detectors must be interconnected so that if the alarm sounds on one detector, it triggers the alarm of all of the smoke detectors in the house.
- i. Hard wired carbon monoxide detectors with a battery backup must be located outside of and in the immediate vicinity of each sleeping room when gas fired appliances are installed in the house.

15. ENERGY FINAL

- a. Ceiling insulation must comply with the minimum R-value contained in the RESCheck or the IC3 document.
- b. Depth markers must be installed in the attic for every 300 square feet of attic area.
- c. If insulation is blown or sprayed into the attic, a certificate must be installed at the attic entry point identifying the type and depth of the insulation used. The certificate must include a chart that indicates the depth the insulation must be to achieve a certain R-value.
- d. The SEER rating of the air conditioning system must meet the minimum SEER rating required by the RESCheck or the IC3 document.

This packet is only intended to be a helpful reference. Therefore, the above requirements are only a general list of building, electrical, plumbing, and mechanical code regulations. For a complete list of building requirements refer to:

**2012 International Residential Code
2017 National Electrical Code**