



RESIDENTIAL CONSTRUCTION PACKET

**All plans, permits, and inspections are being reviewed under the
2018 International codes, 2017 National Electric Code**

**321 N. Main St.
Hutchins, Texas 75141
(972) 225-6121**



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GENERAL REQUIREMENTS

Plan Review/Permit Submittal

All plan submittals must contain the documents listed below, incomplete submittals will not be accepted. Regular permit applications will generally be reviewed within fourteen (14) working days.

Three complete sets of drawings shall be submitted that include the following:

- a. Completed Permit Application
 - b. Site plan indicating all property lines, easements and setbacks of the proposed building
 - c. Window and door sizes.
 - d. Elevation drawings showing exterior wall construction and masonry percentage calculations. Elevation Approval Form (if multiple homes being built).
 - e. Structural foundation drawing stamped by professional engineer licensed by the State of Texas.
 - f. 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 2018 International Residential Code.
 - g. Engineered shear wall design (must be sealed by PE).
 - h. Energy review (RESCheck, IC3, HERS, Residential Energy Compliance form, etc.).
 - i. Floor plan
 - j. Electrical plans.
1. No construction other than setting form boards and lot grading may begin until a building permit has been issued.
 2. No tracked vehicles will be allowed on streets and alleys after subdivision has been accepted.
 3. Instruct all subcontractors and their employees to park in such a way that emergency vehicles will not be obstructed.
 4. NO PARKING on lots other than to load or unload tools and materials.
 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 4 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 and electrical contractor if temporary power is tied directly into the permeant 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 for final inspection.

GENERAL INSPECTION NOTES

1. All inspections must be requested by calling (972) 225-6121.
The General Contractor is responsible for calling in all inspections, inspections requested by anyone else will not be scheduled. Inspections requested prior to 4:00 PM will be performed between 9:00 AM and 4:00 PM the next business day. Inspections requested after 4:00 PM will be performed the second business day.
2. 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 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.
3. Re-inspection fees are \$75.00 for each failure. Re-inspection fees must be paid prior to request for final inspection.
4. City approved building plans must be available, legible, and in order on the job site when all inspections are conducted. Failure to have plans on the job site will result in a failed inspection and re-inspection fee.
5. Materials located in the right-of-way. All dirt, sand or any type of construction materials 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 the curb.
 - b. If 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.
6. A trash box shall be on site at all times during construction, and shall be emptied as needed to prevent blowing trash. Failure to have a trash box or to empty the box will result in a red tag and re-inspection fees.
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
 - a. T-Pole, Plumbing Rough & Foundation – The permit packet must be located on 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 available, legible, and in order on the job site when all inspections are conducted. Failure to have plans on the job site will result in a failed inspection and re-inspection fee. 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. Cancellations will only be accepted prior to 9:00 AM the day of the inspection. Anything after 9:00 AM is subject to red tags and re-inspection fees.

RESIDENTIAL INSPECTIONS REQUIRED

Each of the following inspections must be requested in the listed order. If an inspection is requested before a prior required inspection has been approved, no inspection will be conducted.

Inspections required are:

- a. Temporary Pole (can be done at any time)
- b. 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.
- c. Flatwork (can be done any time prior to Utility Meters).
- d. Plumbing Rough with Form Board Survey.
- e. Foundation
- f. Sheathing
- g. Frame / Mechanical Rough / Electrical Rough / Plumbing Top-Out (must all be done at the same time)
- h. Insulation
- i. Utility Meters (third party insulation energy compliance results)
- j. Building Final / Mechanical Final / Electrical Final / Plumbing Final / Energy Final (must all be done at the same time).

RESIDENTIAL INSPECTION REQUIREMENT

1. Temporary Power Pole

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

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. You must follow City details for your project.
- 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 points 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 (18") 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 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. 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 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 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. All rained out inspections must be recalled. Plumbing rough inspections cannot be performed if the temperature is below freezing.

a. **Water Lines**

1. The form board survey must be present and be available, legible, and in order on the job site when all inspections are conducted. Failure to have survey on the job site will result in a failed inspection and re-inspection fee.
2. One hose bib with non-removable vacuum breaker must be installed in the water line to check the pressure on the water pipes.
3. All hose bibs must have non-removable vacuum breakers installed at all times.
4. A one-inch (1") line supply will be required up to thirty-two (32) fixture units.
5. Copper lines will not be allowed to touch each other.
6. Copper lines must be sleeved or taped. Painting of the copper will not be accepted.
7. Lead solder and fluxes containing lead cannot be used to join potable water lines.
8. T & P (pop-off) lines for water heaters cannot be run in slab.
9. All lines under the slab must be type "M" copper or thicker. PEX piping may also be used underneath the slab.
10. All piping located under the slab must be continuous with no joints.

11. The water meter must be in place with all valves open to allow for testing of the lines at the City water pressure. If City water is not available, a 80 p.s.i. air test can be substituted for the water test. A valid air test will not have any water in the lines.
12. Where a water service crosses a sewer ditch, the water line must be installed in a PVC sleeve.

b. Sanitary Sewer

1. The plumbing rough must be tested with a five-foot (5') head of water on all stacks in the house. The five-foot measurement will be taken from the top of the ninety (90) degree fitting at the last stack in the house. If the last stack is too high to see water in the pipe, the inspection is subject to receiving a disapproval tag.
2. The water test must include the sewer yard line. A test tee must be installed within 5 feet (5') of the sewer tap.
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. Full size double clean outs must be installed along with a single clean out at property line.
5. All holes dug for sewer taps that are deeper than four feet (4'), must be protected by a temporary construction fence.
6. The Building Sewer must be 4" and connected to the City's sanitary sewer system.
7. All 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.
8. All lines must rest on a two inch (2") bed of sand and all lines, traps and fittings must be completely exposed.

c. Gas Line

1. Gas systems with a working pressure of 12 psi or less must use a diaphragm gauge that contains a dial with a minimum diaphragm diameter of three and one half inches (3 ½"), a set hand, 1/10 pound incrimination and pressure range not to exceed 6 psi. The test pressure must be at least 3 psi.
2. Gas systems with a working pressure exceeding 12 psi must use a diaphragm gauge that contains a dial with a minimum diameter of three and one-half inches (3 ½"), a set hand, a minimum of 2/10 pound incrimination and a pressure range not to exceed 20 psi. The test pressure must be at least 10 psi.
3. All gas lines must be buried. The top of the line must be located at least eighteen inches (18") below grade.
4. Where poly gas lines are utilized, a number eighteen (18) AWG copper tracer wire must be buried alongside of the line for its complete length.
5. Black pipe gas lines installed in the ground must be factory mill wrapped pipe and all fittings must be properly field wrapped per manufacturer's installation instructions.

4. **FOUNDATION**

All foundation plans must be sealed by a structural engineer. 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. 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. Jenn-Air 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 must be maintained on the water supply lines.
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. Form board survey must be located in the packet and visible from outside the packet.
21. If plastic water pipe is used, 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 #3 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, install the bar with an additional piece approx. 6 feet long tied to the 20' so 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

6. Work must conform to plans approved by structural engineer and the City.
7. Poly must cover all pad areas only. Poly is to be cut or not installed in beams.
8. Chairs must be in place.
9. Electrical conduit located in the foundation must be installed.
10. Jenn-Air ducts must be shown on approved foundation plans and installed according to the mechanical code.
11. All gas line sleeves must be installed.
12. Original finished floor elevation surveys 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. All tub boxes must be installed.
15. Sewer lines must run at ninety (90) degree angles to grade beams.
16. All copper must be sleeved or taped. Painting of the copper will not be accepted.
17. Water heater T & P lines cannot be composed of PVC material and cannot be installed in slab.
18. 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.
19. Form board survey must be located in the packet and visible from outside the packet.
20. If plastic water pipe is used, 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 #3 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. FRAME, MECH ROUGH, ELECTRIC ROUGH, PLBG TOP-OUT

a. Framing

1. Rafter and joist spans must comply with the 2018 International Residential Code
2. Exterior bottom plates must be secured to the foundation by L-bolts (washers and nuts must be tight). Anchor bolts at every separation and every 6'.
3. Top plate splices must be offset a minimum of twenty-four inches (24").
4. 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.
5. 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.
6. 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.
7. 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.
8. 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 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 load-bearing walls or ten feet (10') for interior non-load-bearing walls.
9. Studs must have full bearing on the bottom plate.
10. 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.
11. 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.
12. 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.
13. All lumber must be grade stamped. Unstamped lumber is unacceptable as a structural framing member.
14. Where ceiling joists support air handling units, skylights and water heaters, those joists will be calculated as floor joists. Where air handling units are supported by rafters, those rafters must be doubled.
15. There will be a two-inch (2") gap between fireplace material and wood studs of any other combustible material as required by the IRC.
16. Stairways
 - a. **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.

- b. **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 (1/2") between the wall and the handrail.
 - c. **Riser Height.** The maximum riser height of any stair is seven and three-quarter inches (7 3/4"). 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").
 - d. **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").
 - e. **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.
 - f. **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).
 - g. **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.
17. Masonry fireplaces must be completed to a point one foot (1') above the damper.
 18. Any brick on wood must comply with the ICC brick on wood policy.
 19. Brick wall ties must be installed.
 20. All penetrations in top plates must be sealed. Small penetrations may be poly sealed.
 21. Holes in exterior sheathing must be sealed.
 22. Covered porches and patios must be inspected to verify proper structural framing prior to installing fascia material.
 23. Cutting, notching or boring of engineered beams is not allowed without a letter from a structural engineer.
 24. If a pull down attic stair is used to access an attic appliance, the stair must have a

minimum capacity rating of three-hundred (300) pounds.

b. Mechanical Rough

1. Metal ducts shall be screwed, joint mastic applied and inspected before insulation.
2. Flexible ducts shall be supported with material at least one and one-half inches (1 1/2") 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.
3. A minimum one-inch (1") clearance must be maintained around gas appliance vents. Air conditioning condensate drains must drain into a wet trap. Condensate lines that tie into a washer box must be tied in above the inlet of the washer box.
4. Where air-conditioning condensate drain plans 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.
5. Condensate lines located in the attic must include a primary and secondary drain. Water level monitoring devices are not allowed in lieu of a secondary drain line.
6. Condensate drain lines must be a minimum of three-fourth inch (3/4") in diameter.
7. 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.
8. Horizontal runs on gravity type water heater and furnace flue vents must not exceed seventy-five percent (75%) of the height of the vent.
9. Dryer vents are limited to a maximum length of twenty-five feet (25'). The twenty-five foot (25') 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.
10. Dryer vents extending through a roof must include a tight fitting collar to keep line from falling back into the attic.
11. Attic access to a gas appliance (water heater or furnace) cannot be made from a sleeping area and must be within twenty feet (20') of all furnaces and water heaters.

c. Electrical Rough

1. Romex must be stapled every four and one-half feet (4 1/2') on the horizontal.
2. Romex must be stapled within twelve inches (12") of all boxes.
3. Romex extending through masonry must be protected by conduit.
4. Sheathing on Romex must extend a minimum of one-fourth inch (1/4") into the box.
5. Wire must be clamped to metal boxes.
6. 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.
7. A cold water ground may be used when water heaters are installed on the ground floor and copper water lines are used, the cold water ground must be attached at the

cold water inlet to the water heater. When the water heater is not installed on the ground floor, the cold water ground must be attached to the cold water supply to the kitchen sink. A supplemental ground must also be supplied when using a cold water ground. If no metal water piping is available, 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 #3 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 so 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.

8. A separate 20-amp laundry circuit must be supplied. No other outlets will be allowed off of this circuit.
9. 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.
10. All circuits that are not GFCI protected must be AFCI protected.
11. Laundry room, kitchen and bathroom receptacles must have AFCI and GFCI protection.
12. Where a panel or disconnect device is tapped more than one time, approved lugs shall be provided.
13. Armored cable (bx) shall not be used or installed in the City as a wiring method unless it has a full size grounding conductor.
14. If service entrance conductors are more than three feet (3') in length, a disconnect must be provided at the outside of the structure and next to the electrical meter.
15. All 240-volt appliances must be wired with a four (4) wire system that includes a neutral and a separate ground.
16. A nail strap that is at least 1/16" thick must protect electrical lines in notched or bored studs that are 5/8" or less from the edge of the stud.
17. 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 5/8" from the edge of the wood member.
18. All metal boxes must be bonded by a listed means (no wood screws).
19. Bathroom receptacles or switches must be at least three feet (3') from the edge of a bath tub.
20. CSST manifolds must be properly bonded per manufacturer's specifications.
21. 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.
22. Circuits installed in or under a concrete foundation must meet the requirements of wet locations. This included kitchen island circuits.
23. Receptacles located in kitchen counter tops cannot be used to take the place of

required wall receptacles.

24. The neutral conductor must be installed in switch boxes.
25. 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.
26. 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.

d. Plumbing Top-Out

1. Water

- a. All copper lines must be braced.
- b. T & P lines must be composed of hard drawn copper or CPVC. T & P lines cannot be composed of PVC material and cannot be installed in slab.
- c. 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.
- d. Frost proof hose bibs with non-removable vacuum breakers must be installed.
- e. Lead solder and fluxes containing lead are prohibited materials for use in potable water pipes.
- f. Notching, cutting or boring must not seriously weaken structural member.
- g. 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.
- h. All water lines in unheated areas must be insulated with a minimum of 3/4" pipe insulation.
- i. All copper located in the brick ledge must be wrapped.

2. Sewer

- a. 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.
- b. A top-out water test is required for all plumbing located above the first floor. Lines must be tested at least two feet (2') above the trap arm.
- c. 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.
- d. Plumbing vents must terminate at least ten feet (10') from or two feet (2') above any window that can be opened.

- e. Water heaters must have a drip pan with a drain line to the outside of the building.
- f. All lines within one inch (1") of the edge of a stud or plate must be strapped with a 1/8 inch thick by 1-12 inch wide strap. The strap must be nailed to the stud or plate.
- g. Vents must terminate at least 10 feet from - or at least 3 feet above any openable window, opening or air intake.
- h. Support horizontal runs of PVC piping every four feet (4') on center.
- i. Shower pans must be set in concrete and secured to the wall. Voids under the shower pan must be eliminated.
- j. Condensate lines that tie into a washer box must be tied in above the inlet of the washer box.
- k. All drain lines must have a slope of at least one-quarter inch (1/4") per foot.
- l. Air admittance valves are not allowed unless approved by the Building Official prior to installation.
- m. Island loop vents must utilize the following fittings in the order listed: a 45° fitting, a short-turn 90° fitting and a 45° fitting.

3. Gas Lines

- a. **CSST** Where a CSST gas piping system is utilized that contains a working pressure greater than 12 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 twenty (20) p.s.i. For portions of CSST piping that are regulated to a working pressure of less than 12 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 acceptable.
- b. **Black Pipe** Where a standard black pipe system is utilized, an air test of at least three pounds per square inch (3 p.s.i.) is required. The test must be performed on a diaphragm gauge that has a set hand and has a maximum range of six (6) p.s.i.
- c. Holes cut for gas lines must only be large enough for the line to penetrate.
- d. Gas lines must be properly supported.
- e. Gas lines located between bricks and studs must be factory mill wrapped.
- f. All gas outlets must have approved gas stops installed along with caps.
- g. No water, soil, or waste pipe can be installed or located outside of a building, in an unheated area or in an exterior wall unless, adequate provisions are made to protect such lines from freezing.
- h. Gas vents must terminate at least 4 feet from any wall.
- i. CSST manifolds must be properly bonded per manufacturer's specifications.

6. ENERGY INSULATION

- a. All wall insulation must be installed per the RESCheck, IC3 calculator or Table R402.1.1 of the 2018 IECC.
- b. All windows and doors must meet the minimum requirements contained in the

RESCheck, IC3 document or Table R402.1.1, whichever is applicable.

7. **Utility Final**

a. **Electric**

1. All wires must be terminated with a receptacle, switch, appliance or fixture -- or all wire ends must be wired nutted 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.

b. **Gas**

1. Where a gas piping system is utilized that contains pressure greater than 12 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 twenty (20) p.s.i. For portions of gas piping that are regulated to less than 12 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 acceptable.
2. Gas piping that will have a working pressure greater than 1/2 psi shall include permanent metal tag at the meter, at the entrance into the house (if the gas meter is located at the alley), and at the regulator stating the following: "Warning: 1/2 to 5 p.s.i. gas line".
3. Gas stops at each appliance must be properly secured for all types of piping including CSST systems.

4. All gas lines must be connected. Gas stops and caps must be installed on any gas line for future use.
5. Gas connectors must not exceed three feet (3) (except for clothes dryers and ranges, which must not exceed six feet (6')).
6. CSST manifolds must be properly bonded per manufacturer's specifications

8. **FINAL INSPECTIONS**

a. **Building**

1. 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.
2. Chimneys must extend at least two feet (2') above any point within ten feet (10') of the roof.
3. Street, alley, and all flatwork must be clean and clear of mud and debris.
4. Yard must be clear of debris and final grade completed.
5. A solid core door must be installed between the garage and living area.
6. A permanent address 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.
7. 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.
8. Hard wired carbon monoxide detectors with a battery backup must be located outside of and in the immediate vicinity of each sleeping room.
9. If a pull down attic stair is used to access an attic appliance, the stair must have a minimum capacity rating of three-hundred (300) pounds.

b. **Mechanical**

1. 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.
2. 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.
3. 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.

4. 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.
5. Condensate lines located in the attic must include a primary and secondary drain.

Water level monitoring devices are not allowed in lieu of a secondary drain line.

c. Electrical

1. All receptacles must be wired properly. All light fixtures must be installed.
2. All GFCI's must be installed and working properly.
3. 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
4. All areas requiring illumination must be switched with a wall type switch.
5. Circuits must be labeled in breaker box.
6. The Jacuzzi access panel must be removed for inspection.
7. Sprinkler wires located in garages must be strapped.
8. Electrical outlets located in garages that are not GFCI protected must be single receptacles and labeled.
9. Floor outlet receptacles must be accessible.
10. 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
11. All HVAC equipment must have an electrical disconnect within site of the equipment served.
12. Water Heaters must have an electrical disconnect within site of the water heater.
13. 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.
14. All circuits that are not GFCI protected must be ARC fault protected.
15. Bathroom receptacles or switches must be at least three feet (3') from the edge of a bath tub.
16. Receptacles must be tamper resistant.
17. Receptacles located in kitchen counter tops cannot be used to take the place of required wall receptacles.

d. Plumbing

1. All gas lines must be connected. Gas stops and caps must be installed on any gas line installed for future use.
2. All plumbing fixtures must be installed. Any drain or water line that is installed for future use or expansion must have permanent caps.
3. Frost proof hose bibs with integral vacuum breakers must be installed.
4. 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.
5. Hot water must correspond to the left side of fittings on plumbing fixtures.
6. 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.
7. PVC vent stacks must be painted with latex paint.
8. Air gap fittings must be installed on all dishwashers.
9. Shower doors must have a minimum opening clearance of twenty-two inches (22").
10. Gas connectors must not exceed 3 feet (except for clothes dryers and ranges which must not exceed 6 feet).

e. Energy

1. Ceiling insulation must comply with the minimum R-value contained in the RESCheck, the IC3 document or Table 402.1.1.
2. Depth markers must be installed in the attic for every 300 square feet of attic area.
3. If insulation is blown 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.
4. The SEER rating of the air conditioning system must meet the minimum SEER rating required by the RESCheck or the IC3 document.

f. General

1. Electrical and gas meters must be installed. If the inspection is requested and the inspection conducted prior to the installation of the electric or gas service meter, a re-inspection fee will be assessed.
2. All work is to be complete. No workers should be on the site at the time of the inspection.

REQUIRED FINAL DOCUMENTS

Precise Grade Certificate

Third Party Energy Final

Residential Energy Compliance

Backflow Certificate for Irrigation

Finished floor Elevation (F.F.E.) Certificate submitted to Floodplain Department prior to final inspection if in floodplain

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:

- 2018 International Building Code
- 2018 International Residential Code
- 2018 International Plumbing Code
- 2018 International Mechanical Code
- 2018 International Energy Conservation Code
- 2018 International Swimming Pool and Spa Code
- 2018 International Fuel Gas Code
- 2018 International Property Maintenance Code
- 2018 International Fire Code
- 2017 National Electrical Code