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# RESIDENTIAL GUIDE

## Temporary Electric Loops

1. Secure pole.
2. Meter base between 4 and 6 feet above grade.
3. Panel properly grounded.
4. All 110v. And 220 v. outlets to be GFCI protected.
5. Temp. Ground rod.
6. Property address legibly marked on pole

## Plumbing Rough/Form Layout

1. Minimum 5-ft. plumbing drain risers full of water for leak test or 5 lb. Air test.
2. Negative fall on drain lines.
3. Too much slope on P-trap drain lines.
4. Leak at fittings.
5. Fully bed drains lines.
6. No cellular core pipe in or under concrete.
7. Sleeve for building drainpipe at the exterior beam to be 2 pipe sizes larger and extend through the beam.
8. Drain line markings must be turned up for identification in ditches.
9. Form survey required if finished floor elevation needed, or house is tight on the lot.

## Foundation/Copper

1. Cables and/or steel in place and steel not in contact with soil.
2. Leak test drain lines.
3. Repair any damaged drain lines or water supply lines. Drain line repairs to be glued or stainless-steel type repair fitting made 6 inches out of the beam.
4. #4 bare copper wire for primary electric service grounding, minimum 20 ft. in the bottom of the foundation beam. (Not in contact with soil)
5. Finish forms at water and sewer lines.
6. Water line to be a minimum 12 inches deep at the slab exit point.
7. Minimum 2-inch clearance at cables under drain lines.
8. Clean beams.

## Residential Framing Top Out

1. Bottom plate anchor bolts in place with washers and tightened nuts maximum 6 ft. spacing (or as specified by engineer), 3-inch shots with washers 3 ft. on center & 6 inches from ends and splices.
2. Bearing wall studs, 2 story 1<sup>st</sup> floor 16" O.C. and stud grade, 2<sup>nd</sup> floor utility grade 24" O.C. and within 5" of rafter/ceiling joist or truss.
3. Lateral bracing for all exterior walls and interior load bearing walls. 1X4 wood, metal straps or structural sheathing may be used and must be nailed to specs.
4. Check ceiling and floor joists for proper spans and support at ends. Minimum 1 1/2 bearing on ends or joist hanger with all holes filled with proper size nails.
5. Check floor sheathing for proper grade stamp, nailing and support. Check roof sheathing for the same with ply clips.
6. Stair requirements for riser height tread depth/width and minimum head clearances in stairway.
7. Temporary guard rails at stairs and 2<sup>nd</sup> floor.
8. Attic access ladder installed for attic and equipment inspection.
9. Attic equipment to have clear access to and in front of the unit(s).
10. Minimum 24" wide catwalk, less than 20 ft., to the units from the attic access to be installed to the 3/4 inch equipment platform. Minimum 30" workspace on service side of unit. No wires or flex gas lines on catwalk.
11. 2X6 collar ties and purlins for stick framed rafters must be in place. Roof/beam supports must be supported to the slab. All ridge/rafter splices supported and nailed. Use approved nailing patterns on all studs, headers, joists, rafters, beams, etc....
12. Studs cannot be over notched or bored without approved repairs.
13. Over bored or notched top plates must be repaired with approved reinforcement strap, minimum 4 nails at each end using proper size nails, same for the bottom plate.
14. Damaged studs, ceiling joists, floor joists and rafters will be replaced or doubled. Repaired studs must be properly spliced; minimum 2 ft. each side of damaged area. Approved stud shoes at over bored studs.
15. All chases, dead spaces, furred out walls, tall wall cavities, furred down ceilings will have fire blocking. Separate wall cavities from attic spaces, i.e., siding short of top plate. Draft stop floor cavities every 1000 sq. ft.
16. Check egress requirements, 36" hallways, exit doors, windows.
17. Clean all dead spaces and wall cavities.
18. Seal all exterior sheathing penetrations and brick pockets.
19. Double cripples for all rough openings 6 ft. and over, shim headers tight to cripples.
20. Exterior doors and windows set with proper nailing and clearances, tempered glass where necessary.
21. Soffit vents and air hawks for adequate attic ventilation.
22. Check for proper use and grade of lumber.
23. Minimum .131 shank/3" nail to be used for all structural framing.
24. Repairs on Engineered products MUST have Engineers repair and provide documents.
25. Additional Support under all attic units, i.e., HVAC and Water Heaters.
26. Single top plates must be secured at joints and intersections.
27. Seal all plate penetrations, first stage poly seal.

## Plumbing Topout

1. Water pressure or 90-lbs. air test on copper water supply, 100-lbs. air test on PEX piping.
2. Static water leak test on 2<sup>nd</sup> floor DWV lines, tub traps and shower pans.
3. Separate hot and cold-water lines from each other.
4. Copper should not be in contact with dissimilar metals.
5. Washer drain box and ice maker box to be secured.
6. Damaged or kinked water lines to be properly repaired.
7. All plumbing to be supported or anchored with approved material, no dissimilar metals.
8. Water hammer arrestors for water supply system.
9. Shower and shower/tub control valves will be of the pressure balance or thermostatic mixing or combination of both.
10. Pressure reducing valves with a thermal expansion control device to be used if water pressure is above 80 psi.
11. Seal tub trap wells in slabs.
12. Gas line pressure test to be holding at 20 lbs. and gas line valve within 2 ft. of the unit.
13. All gas valves to be readily accessible.
14. Stainless Steel gas flex lines to be secured to manufacturers specs. Use manufacturer approved gas line protection at top and bottom plates.
15. Water heater to have brass nipples or manufacturer provided nipples used at water line connections.
16. Water heater located in the attic to be within 20 ft. of the attic access with the firebox opening facing the attic access. Clear access to water heater.
17. Added support under attic water heater(s).
18. Water heater metal pan and drain line required where damaged to building components can occur from a leak, minimum 1" drain line separate and to the exterior.
19. Water heater Temp. /Pressure relief valve line to be separate to the exterior and rated to valve specs. Closed system requires expansion for thermal expansion.
20. Flue pipe clearances required from all combustible material.
21. Gas water heaters shall have combustible air supply for closet or attic.
22. Water supply shut-off valve required in accessible location at incoming water supply inside dwelling
23. All water lines within 24" of exterior walls requires proper insulation.

## **Mechanical Topout**

1. Exhaust fans to be reduced and vented to the exterior.
2. Dryer vents to be reduced and no longer than 25ft.
3. Attic HVAC units to have additional ceiling joist support.
4. Attic HVAC units to have attic pan with drain line exiting over a clear glass widow or exterior door, or a pan float switch.
5. HVAC secondary condensate cut off switch for first floor closet unit.
6. HVAC flex duct minimum R-8 on supply and R-8 on return inside the building envelope.
7. All flex ducts secured up off ceiling joist for blown insulation. Check for crimps or restricted airflow.
8. All ducts must be sealed at all connections properly, 181 approved tapes and/or mastic.
9. No gas flex lines to penetrate HVAC cabinet.
10. Flue pipe clearances required from all combustibile material.
11. Clear access to all attic units for change out, must be within 20 ft. of attic access.
12. Return air plenums to be sealed from wall cavities. Attic plenums will be supported. No combustibles in plenums.
13. All gas furnaces and water heaters will have fresh air source for combustibile air.

## **RESCheck - MECCheck Insulation**

1. RESCheck/MECCheck form must be on jobsite. All items on form must be same as what has been installed.
2. Insulate wall behind tubs.
3. Insulate tight ceiling corners where insulation cannot be blown.
4. Stuff unfaced insulation tight in all firestop areas, i.e., holes in subfloor at tub traps, A/C duct chases, any holes in fire blocking.

## Residential Final

1. Street asphalt damaged areas  $\frac{3}{4}$  in. or deeper must be repaired.
2. Clear adjacent lots of construction debris.
3. Fire hydrant valve and main water valve accesses set to finished grade, accessible and clean to valve.
4. Cover water meter box set to grade, clean and in good shape with cover unsecured.
5. Replace broken/cracked driveways and sidewalks.
6. Permanent address of contrasting color on the house and visible from the street, minimum 4-inch numbers.
7. Flue vent rain caps and storm collars, fireplace spark arrestor installed properly.
8. All roof penetrations must be painted.
9. Minimum 6 inches of slab exposed above final grade.
10. Grade and drainage of yard to approved plot plan, top spread with silt runoff control in place.
11. Sewer cleanout at house, pop-up must be 4" above final grade and 6" near street flush with final grade.
12. Seal all outside penetrations, expansion joints, lights, etc.
13. Water heater and or HVAC closets fire blocked, combustible air vents, flue pipes, gas flex line installed.
14. Garage to be fire rated from rest of house, seal all penetrations, and use fire rated door. Garage cannot be accessed from bedroom.
15. Exterior doors have weather strip, threshold, locks, and thumb throw deadbolts installed.
16. Attic access needs to be insulated with weather strip; attic ladder installed to manufacturer's specs. & catwalk to all attic units, if a door is used it must be solid core and weather stripped.
17. Plumbing finished, i.e., water closets, lavatory, sinks, and fixtures installed.
18. Kitchen sink disposal and dishwasher hooked up, dishwasher drain must be looped and secured to highest point, everything secured out of the way.
19. Downdraft range/cooktop vent must be smooth wall pipe finished to exterior and 12" above grade.
20. A/C condenser pad set 3" above grade, all wires to unit to be protected.
21. Storage area under the stairs to be finished and switched light required.
22. Interior handrails and guardrails meet requirements, handrails to be continuous.
23. Porches 30" above grade must have guardrails.
24. Steps with 2 or more risers must have handrail.
25. Gas cut off valves in place and gas flex line to units installed; unused valves must be plugged or capped.
26. Install shower enclosures and doors.
27. Attic catwalks clear of trip hazards, attic pans clean of debris.
28. MECcheck/REScheck, Engineer's slab report and Electrician Torque Letter
29. Seal all exterior wall and ceiling to attic penetrations.
30. Decks to be bolted to foundation, joist hangers, guard and handrails, proper picket spacing and step requirements.
31. T&P drains must terminate no lower than 6" above finish grade.

## **Residential Electrical Topout**

### **2020 NEC and City Ordinance**

2020 National Electric Code (2020 NEC). Local amendments are in the Round Rock Code of Ordinances Part III (Zoning and Development Code); Chapter 8 (Zoning and Development Standards); Article X. (Buildings and Building Regulations); Division 9. (Electrical Code)

\*\*Significant local amendments to the electrical code were adopted on November 1, 2020, that have not yet been incorporated into the text of the Code of Ordinances. Until then, please refer to Ordinance O-2020-0270.

1. Smoke detectors shall be interconnected.
2. No panel within 6' from any interior water fixture.
3. All joints made up with approved connectors.
4. Fan boxes shall be UL approved.
5. Too many wires at rough in boxes.
6. No aluminum wires or #14 copper.
7. Staple wires 12" from panel.
8. Staple wires 6" to 8" from box, 48" thereafter.
9. Staple low voltage wiring with insulated staples.
10. Protect wiring within 1-1/4 inches of stud face.
11. Separate grounds and neutrals at all sub panels.
12. All boxes shall be flush with wood siding.
13. All attic access shall have light and switch.
14. Light, switch and plug in all attic spaces where there is equipment.
15. Wiring shall not be closer than 6" from attic access unless it's stapled on other side of roof or ceiling joist.
16. Kitchen plugs shall be spaced 2' from sink then 4" on center.
17. GFCI outlet with 36" of edge of every lavatory.
18. Halls over 10' long needs an outlet
19. Provide outlet on walls 2' or longer.
20. Minimum 2 small appliance circuits for kitchen.
21. Individual circuit for each of the following: dishwasher, Jacuzzi (GFCI), clothes washer & microwave.
22. Islands in kitchen shall have a GFCI outlet.
23. One exterior weatherproof GFCI plug in front and on behind house and near A/C compressors.
24. No wiring within 3" of dryer, range exhaust vent and recessed light cans.
25. All kitchen countertop outlets on GFCI.
26. UFFER ground not broken and at the main panel locations, use non-reversing clamp on splices.
27. Check closet light fixture location for shelf clearance.
28. All 120v 15a and 20a circuits supplying outlets in family rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms, sunrooms, recreation rooms, closes, hallways or similar rooms shall be **protected by combination Arc Fault. (Note: dining area receptacles are small appliance receptacles)**
29. **Receptacles at front and rear shall be accessible at grade level**
30. **All receptacles in garage or storage or accessory buildings shall be GFCI.**
31. Sub panel cannot be overstepping.
32. Check sub panel load for correct feeder size.

## **Electrical Final**

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1. Smoke detectors located in bedrooms, bedroom corridor, and one in common areas on each floor level and as far from the kitchen as possible.
2. GFCI identify all outside, garage, kitchen, and bathroom outlets.
3. Low voltage tied into condenser in conduit.
4. Electric power tied into condenser in conduit.
5. Water bond installed and ground clamp accessible and secured.
6. Bonding jumper for water softener loop.
7. Electric panels, disconnects and meter base secured to structure, vinyl siding is not structural.
8. Make sure meter can and outside panel is grounded.
9. Overhead mast service to be 2" rigid pipe.
10. 2" PVC with 2" strap on underground service.
11. Seal around weatherproof plugs, covers and light fixtures.
12. Specifically label all breakers in panels.
13. Make sure microwave over range is marked in panel.
14. All outlets and switches must be flush; boxes flush at cabinet/countertop/wood paneling.
15. Weatherproof light fixture trim in shower.
16. Secure romex wire for disposal under sink.
17. No pull chain fixtures in closet, attic, or garage.
18. Check for proper size breaker for A/C condenser.
19. Accessible disconnect switch for electric water heaters and furnace.
20. 100 amps. Minimum service on housing.
21. All outlets and fixtures installed maximum of 3 blanked off.
22. Access to all motors, i.e.: Jacuzzi, etc. marble or tile fronts not acceptable.
23. Provide 3 grounding ports for other utilities at main panel
24. All 120v 15a and 20a circuits supplying outlets in family rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms, sunrooms, recreation rooms, closes, hallways or similar rooms shall be protected by combination Arc Fault.
25. All 125v 15a and 20a receptacles shall be tamper resistant.
26. Outside receptacles shall be weather resistant
27. Receptacles at front and rear shall be accessible from grade level.
28. All 125V, 15A and 20A receptacles in garage shall be GFCI
29. Multiwire circuits shall be provided with a means that simultaneously disconnects all ungrounded conductors.