LOWELL CONSTRUCTION SERVICES

INFORMATION PACKET

September 2014

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Current Adopted Codes

2012 Arkansas Fire Prevention Code Vol.1 Fire - IFC
2012 Arkansas Fire Prevention Code Vol. 2 Building - IBC
2012 Arkansas Fire Prevention Code Vol. 3 Residential - IRC
2014 National Electrical Code
2010 Arkansas Mechanical Code
2006 Arkansas Plumbing Code
2006 Arkansas Fuel Gas Code
2012 International Swimming Pool & Spa Code
2009 International Property Maintenance Code
2003 ICC / ANSI A117.1
2013 NFPA Life Safety Codes

Note: Building Contractors should be aware that Lowell City Code states the following:

> Except as otherwise provided, a person convicted of a violation of this code shall be punished by a fine not exceeding $500.00, or double such sum for each repetition thereof. If the violation is, in its nature, continuous in respect to time, the penalty for allowing the continuance thereof is a fine not to exceed $250.00 for each day that the violation is unlawfully continued.

Violations / Penalties

Any person, firm, corporation or agent who shall violate a provision of this code, or fail to comply therewith, or with any of the requirements thereof, or who shall erect, construct, alter, install, demolish, or move any structure, electrical, gas, mechanical or plumbing system, or has erected, constructed, altered, repaired, moved or demolished a building, structure, electrical, gas mechanical or plumbing system, in violation of a detailed statement or drawing submitted permitted there under, shall be guilty of a misdemeanor. Each such person shall be considered guilty of a separate offense for each and every day or portion thereof during which any violation of any of the provisions of this Code is committed or continued, and upon conviction of any such violation such person shall be punished within the limits and as provided by state and local laws.

Inspection Scheduling Procedures

1. Inspections must be scheduled a minimum of 24 hours in advance. When calling in to schedule your inspection, please be prepared to give the project address as well as your permit number. We must have both in order to schedule your inspection.
2. Each permit (Building, Plumbing, Electrical, Mechanical and Swimming Pool) fee will cover one (1) initial inspection and one (1) re-inspection. Subsequent re-inspections for the same deficiency(s) will cost $25.00 per permit for the second re-inspection, $50.00 for the third re-inspection, with a $25.00 increase for each subsequent re-inspection. This re-inspection fee is to be paid before the re-inspection or any other inspection on the project will be scheduled, (per Ord. 789)

Certificate of Occupancy

1. Permitting a structure to be occupied prior to a final inspection by the Building Division and issuance of a Certificate of Occupancy shall be a violation of the IRC (R110.0) IBC (110.1).
2. No building or structure shall be used or occupied, and no change in the existing occupancy classifications of a building or structure or portion thereof shall be made until the building official has issued a certificate of occupancy therefor as provided herein. "Issuance of a certificate of occupancy shall not be construed as an approval of a violation of the provisions of this code or of other ordinances of the jurisdiction." Utility services will be removed from any building allowed, by the builder, to be occupied before passing all final inspections.
3. A building shall not be occupied or a change made in the occupancy, nature or use of a building or part of a building until after the Building Official has issued a Certificate of Occupancy. Said certificate shall not be issued until all required electrical, gas, mechanical, plumbing and fire protection systems have been inspected for compliance with the technical codes and other applicable laws and ordinances and released by the Building Official.
4. Upon satisfactory completion of construction of a building or structure and installation of electrical, gas, mechanical and plumbing systems in accordance with the technical codes, reviewed plans and specifications, and after the final inspection, the Building Official shall issue a Certificate of Occupancy stating the nature of the occupancy permitted, the number of persons for each floor when limited by law, and the allowable load per square foot for each floor in accordance with the provisions of code.
5. A Certificate of Occupancy for any existing building may be obtained by applying to the Building Official and supplying the information and data necessary to determine compliance with the technical codes for the occupancy intended. Where necessary, in the opinion of the Building Official, detailed drawings, or a general inspection, or both, may be required. When, upon examination and inspection, it is found that the building conforms to the provisions of the technical codes and other applicable laws and ordinances for such occupancy, a Certificate of Occupancy shall be issued.

Permits

1. A permit issued shall be construed as a license to proceed with the work and not as authority to violate, cancel, alter, or set aside any of the provisions of the technical codes, nor shall issuance of a permit prevent the Building Official from thereafter requiring a correction of errors in plans, construction, or violations of this code. Every permit issued shall become invalid unless the work authorized by such permit is commenced within 6 months after its issuance, or if the work authorized by such permit is suspended or abandoned for a period of 6 months after the time the work is commenced.

2. On all buildings, structures electrical, plumbing, mechanical and gas system or alterations requiring a permit, a fee for each permit shall be paid as required. In accordance with the schedule as established by the City of Lowell.
3. A permit shall not be issued until the fees prescribed have been paid. Nor shall an amendment to a permit be released until the additional fee, if any, due to an increase in the estimated cost of the building, structure, electrical, plumbing, and mechanical or gas systems, has been paid.
4. If, in the opinion of the Building Official, the valuation of building, alteration, structure, electrical, gas, mechanical or plumbing systems appears to be underestimated on the application, permit shall be denied, unless the applicant can show detailed estimates to meet the approval of the building official. Permit valuations shall include total cost, such as electrical, gas, mechanical, plumbing equipment and other systems, including materials and labor.
5. Any person who commences any work on a building, structure, electrical, gas, mechanical or plumbing system before obtaining the necessary permits, shall be subject to a penalty of l00% of the usual permit fee in addition to the required permit fees.

Permit Cards

1. The building permit shall be kept on the site of the work until the completion of the project. The cards contain information relevant to a specific job, and are used by various utilities, subcontractors, realtors, inspectors, and others. Such use requires the card to Remain posted until the job has passed final inspection.
2. After a Building Permit is issued, a weather resistant permit card is filled out with permit number, contractor's name, date of issue, address and lot number. Specific conditions, i.e., minimum finish floor elevation, etc. may be noted on permit.
3. The contractor is to place the permit card so that it is visible from the road, and is responsible for maintaining it in place, as no inspections will be done if the permit card is not on site. Inspections passed will be dated on permit card; no date means inspection has not been done yet, or has failed. A discrepancy sheet will be left on-site indicating corrections if inspection failed.

Any job not having the permit card posted will have inspections turned down, no questions asked.

Responsibilities

It shall be the duty of every contractor who shall make contracts for the installation or repairs of building, structure, electrical, gas, mechanical, or plumbing systems, for which a permit is required, to comply with state and local regulations concerning licensing.

Contractor Licensing - Act 1208

1. Requires license for remodel and repair contractors ("home improvement contractors").
2. License require for all work of $2,000 and up.
3. An owner can do his own home improvement work on residential properties he owns and resides in without a license.
4. Subcontractors of properly licensed contractors are exempt.
5. "Subcontractors" working for an unlicensed contractor (usually will be a home owner) would need a license.
6. Contractors licensed by another state board are exempt as long as they are working within the scope of their license.
7. The penalty for working without a license is $100 to $400 a day.
8. It is a violation to claim to be a licensed contractor if you are not.

Trash Containment – Grass and Weeds

1. One of these will be required on the job site before footing inspection will be approved. The contractor may choose one of the following:
    a. A dumpster made available to the job site, or
    b. A trash receptacle 4 feet tall and 6 feet across, secured to each lot.
2. Paper and wood products, insulation and other material used in construction of a building must be cleaned up daily. Lightweight material may be stored and contained in a receptacle on site until taken from the job site. Heavy materials such as wood or brick may be placed in a pile until removed.
3. Household trash, construction and demolition waste (including lumber and/or wood) is considered a waste material and cannot be burned according to state law.
4. Grass and weeds are not to exceed 6 inches in height.

Failure to keep the job sites clean (including grass and weeds) may result in the loss of electric service and inspections until resolved. In addition, the Contractor may receive a citation for code violation from the Code Enforcement Officer.

Concrete

1 State Law requires concrete washout containment. Three components are required for compliant concrete washout: Contained Area, Defined Area and Rock Entrance. Uncontrolled concrete washout discharges can result in fines up to $25,000 and/or one year in jail or subject to both.
2. Concrete is to be placed within ninety (90) minutes after leaving batch plant or it is to be rejected. No concrete is to be placed when water is standing in footing.

Construction Access

1. Construction access shall be limited to a driveway cut approved by the Building Services Department. Driveway must have gravel in place at time of footing inspection. Residential driveway cuts will be inspected at time of footing inspection. All other driveway cuts shall be approved after a

Grading Permit has been issued, but before any other dirt work is started. In addition to the curb cut, the construction access shall be graveled for a minimum length of 20 percent of the lot depth or 50 feet, whichever is greater, up to a maximum of 100 feet and of 6 inches thickness to minimize tracking onto the city street. These access points shall be maintained daily to remove trapped debris and maximize their effectiveness. Failure to adhere to the above will result in a Stop Work Order.

Setbacks

1. Setbacks are to be measured from the property line. City of Lowell R-1 is 25 foot front, 25 foot rear, and 7 foot side setback (except from a public street, then 25 foot side setback with an 80 foot minimum lot frontage). Note: Check your specific plat for additional requirements.

HVAC Load Calculations

Load calculations are required (manual J residential or manual N commercial). All HVAC permit applications will be accompanied by a copy of the load calculations for the project requiring the permit. Failure to provide this will result in the permit being denied until it is provided.

Exit Lighting - Emergency Lighting Circuits

Lowell Fire Department and Lowell Building Services will require all exit lighting and/or emergency lighting to be on dedicated circuits and be labeled appropriately. This will apply to all commercial projects.

Street Improvement Requirements

1. All Building Permit Applications affected by Section 8-857 will require review for one of the following before a Building Permit will be issued:
    a. Street improvements built.
    b. Money posted with the City for said improvements.
    c. Approved variance from street standards.
2. Any permit issued requiring street improvements, will be so noted on the permit. Final inspections will not be done, nor will Certificates of Occupancy be issued, until one of the above referenced requirements has been met.
3. Variances for such improvements can only be granted by Lowell City Council action.

Electric Requirements

1. An outside disconnect in an accessible location is required for electrical service.
2. To schedule your electric service:
    a. CECC can be reached at the following:
    Phone: 800-432-9720
    FAX: 866-861-5197

b. AEP can be reached at the following:
Internet address: www.aep.com
Click on Customer Center>Home Options>Start Service
FAX: 866-947-0357
Call Center: 888-216-3523 (from menu, press 4)
Expediter: 888-218-3920 (to check status of request)

3. The use of Aluminum SE cable on the load side of the electrical meter will be allowed. Properly listed and labeled connectors and terminations must be used with all aluminum cable.(load side only)
4. It shall be unlawful for any person other than an authorized employee of the electric service company, the city electrical inspector or authorized member of the fire department, to break any seal of any electric meter, transformer or cabinet. In case of emergency an authorized employee of a licensed electrical contractor or an employee under the supervision of a licensed electrician may break a seal when necessary to replace fuses. In such cases, the electric service company must be notified by the party breaking the seal within 24 hours, in order that the equipment may be resealed. (per Ord. 695)
5. No electric service meter will be installed before final inspection without approval from the Construction Services Division. (per Ord. 695)
6. All types of wiring, including thermostat, non-metallic cable, and alarm systems wiring, shall not be installed anywhere in the duct system, unless plenum rated.
7. All electrical connections shall use an approved disconnect, within 6 feet of each piece of heating and air conditioning equipment, and readily accessible. (Cord and plug connections are allowed on inside gas heating units, if accessible and installed in accordance with N.E.C.)(per Ord. 695).
8. As a minimum, rigid steel piping, of at least schedule 40, must extend through the sheet metal cabinet where the final connections may be made using an approved flexible connector (per Ord. 695).

Intersystem Bonding Termination

An intersystem bonding termination for connecting intersystem bonding conductors required for other systems shall be provided external to enclosures at the service equipment or metering equipment enclosure and at the disconnecting means for any additional buildings or structures".

Combo Smoke/Carbon Monoxide Detectors

Due to continuing development and technological advances, UL listed combination smoke and carbon monoxide detectors are now on the market. Effective this date, UL listed, 120 volt AC with battery back-up, combo units will be accepted within the Lowell jurisdiction. Installation must conform to the manufacturer's installation instructions to be acceptable. Location of CO detectors continues to be discussed nationwide based on the belief that CO is temperature sensitive; i.e. heavier than air below about 65 - 70 degrees, and lighter than air above the 65 - 70 degree range. Therefore, location(s) will be governed (and accepted) by the manufacturer's installation instructions for the particular brand of detector(s) being used per NEC.

Gas Requirements

1. Fuel line piping shall not be installed within any part of the air system of the HVAC system including ducts and plenums (per Ord. 695).
2. Gas service lines out of use more than 30 days will require an air test before being tagged for new service. (per Ord. 695)
3. Open-flame fuel burning appliances shall not be allowed in any structure deemed by the Fire Chief or his representative to contain or produce combustible, flamm-able, or explosive dust or vapors. (per Ord. 737)
4. Gas services utilizing medium pressure or higher delivery shall locate all pressure regulator(s) outside in an open atmosphere unless otherwise approved by Authority Having Jurisdiction. Such installations shall have a gas stop at the metering location and a separate stop immediately outside the structure. (per Ord. 737).

Discretional Requirements

1. Before issuing a permit, the Building Official may examine or cause to be examined any building, electrical, gas, mechanical, or plumbing systems for which an application has been received for a permit to enlarge, alter, repair, move, demolish, install, or change the occupancy. He shall inspect all buildings, structures, electrical, gas, mechanical and plumbing systems, from time to time, during and upon completion of the work for which a permit was issued. He shall make a record of every such examination and inspection and of all violations of the technical codes.
2. When deemed necessary by the Building Official, shall make, or cause to be made, an inspection of materials or assemblies at the point of manufacture or fabrication. A record shall be made of every such examination and inspection and of all violations of the technical codes.

Conditional Requirements

1. Buildings that are constructed greater than 2 feet 11-15/16 inches from a property line but less than 10 feet from a property line or assumed property line, shall have ends protected by a fire partition extending from the floor (if on slab) or from the foundation walls (if on a crawl space) to the bottom of the roof deck. Fire partitions shall be made of OSB, plywood, brick, block, sheet rock, or other materials approved by the Building Official. Approved materials may be applied to the inside or outside of framing. (per Ord. 695)
2. That fire partition shall be defined as a vertical or horizontal assembly of materials designed to restrict the spread of fire in which openings are protected. Windows and doors not exceeding 25% of total square footage and below ceiling level of said wall shall not be required to be protected. (per Ord. 695)
3. Commercial jobs require load calculations (individual branch circuits and total) will be furnished to the city upon permit application for electrical permit. (per Ord. 695)
4. If electrical wiring or any part thereof which is installed, altered or repaired Is covered before being inspected by the inspector, it shall be

uncovered for inspection after notice to uncover the work has been issued. (per Ord. 695)

5. On any proposed remodeling, where more than fifty (50) percent of the electrical wiring in any structure is to be altered, electrical wiring throughout the structure shall be made to comply with the requirements of N.E.C. The Building Official may, at his discretion, waive these requirements. (per Ord. 695)

Driveways

Driveways with greater than 15% slope are not permitted.

Revisions/Addendums/Asi's

1. Any change to the original scope of the approved work shall be submitted to the city for review and approval.
2. Addendums to the specifications may be submitted on 8 1/2 x 11 sheets.
3. All other revisions to the plans/drawings shall be submitted on full size plans.
4. Revised plans shall show the revision date, who the revision was made by and a brief description of the revision. Identifying areas affected by the revision by placing the revision number and clouding the area will also be required. Title block shall be historical.
5. All revisions, addendums and asi's are to be wet stamped, signed & dated by the architect or engineer of record.
6. All revisions, addendums and asi's shall have three copies submitted for approval in addition to an electronic copy.

Mobile Home Utility Hookups

1. Correct Address Numbers (minimum of four (4) inches high in contrasting color) affixed to side or end facing street.
2. Minimum of at least one (1) working smoke detector.
3. Minimum of at least one (1) working carbon monoxide detector, installed in accordance with NFPA 720, "Recommended Practice for The Installation of Household Carbon Monoxide (CO) Warning Equipment".
4. An electrical permit must be issued to an Arkansas licensed electrician to do electrical hookup. Required service to be underground.
5. A plumbing permit must be issued to an Arkansas licensed plumber to do water, gas and sewer hookup.
6. Gas yard lines must pass pressure test each time service is disconnected.
7. Electric service must be re-inspected and tagged for service each time service is disconnected.
8. All mobile home services require permits by licensed contractors. Private sewer systems with on-site discharge will require installation by a licensed septic installer. Private sewer systems with off-site discharge will require a sewer system permit and installation by a licensed plumber. (per Ord. 695)

Storage Guidelines

Minimum Requirements

1. Combustible Materials:
    a. Not within 2 feet of the ceiling.
    b. Not within 3 feet of a heat source or adequate shielding be provided so that ignition cannot occur.
    c. Must be stored in an orderly manner.
2. Not more than 20 feet in height when in the open
3. Shall be so located, with respect to adjacent buildings, as not to constitute a hazard, and shall be compact and orderly.
4. A minimum of 30 inches of clearance shall be provided in front of electrical control panel and the width of the panel from floor to ceiling, for access.
5. All compressed gas cylinders in service or in storage shall be adequately secured to prevent falling or being knocked over.
6. Shall not be located beneath stairs that are in whole or in part of combustible construction.
7. Shall not be placed to obstruct exits, access thereto, egress therefrom, or visibility thereof.
8. A minimum of 18 inches clearance shall be maintained between the top of storage and ceiling sprinkler deflectors.

Extension Cord Use

1. Extension cords shall not be used as a substitute for permanent wiring.
2. Extension cords are permitted only with portable appliances or fixtures.
3. While in immediate use:
    a. Each extension cord shall be plugged directly into an approved receptacle and shall, except for approved multiplying extension cords, serve only one appliance or fixture.
    b. The current capacity of the cord shall not be less than the rated capacity of the appliance or fixture.
    c. The extension cord shall be maintained in good condition without splices, deterioration or damage.
    d. The extension cord shall be of the grounded type when servicing grounded appliances or fixtures.
4. Extension cords and flexible cords shall not be affixed to structures, extend through walls, windows, ceilings, floors, under doors or floor coverings. It should not be subject to environmental damaging physical impact.
5. The use of multi-plug adapters such as multi-plug extension cords, cube adapters, strip plugs or any other device that does not comply with this code or the electrical code, is prohibited.

Residential Plan Review Requirements

Plans and specifications submitted to the building official must be of sufficient nature to clearly show the project in its entirety with emphasis on building codes compliance, structural integrity, life safety assurance and architectural barriers.

One set and an electronic copy are required before the Building Official may begin the plan check review. Building additions and remodeling may not require all of the following components for plan submittal and review for permit. The Building Official shall determine the specific submittal required.

A. **Site Plan** (to scale)
    1. Provide 911 address, lot, block and subdivision information.
    2. Show north arrow.
    3. Provide information on flood plain and finish floor elevation.
    4. Size and location of all new construction and existing structures on the site.
    5. Show building setbacks
    6. Show utility easements.

B. **Foundation Plan** (to scale)
    a. Show all foundations and footings.
    b. Provide footing detail.

C. **Floor Plan** (to scale)
    a. Show all floors including basements.
    b. Show all rooms, dimensions and locations of all structural elements and openings.
    c. Show all doors and windows and list sizes.
    d. Show stair tread and riser detail.

D. **Framing plans** (to scale)
    a. Show all structural members, size, methods of attachment, and location and materials for floors and roofs (If trusses, provide truss specs).

E. **Exterior Elevations** (to scale)
    1. Show all views.
    2. Show all vertical dimensions and heights.
    3. Show all openings, and identify all materials.

F. **Revisions**
    1. If submitted plans and specifications are not in compliance with the adopted edition of the building code, the building official shall provide to the principal design professional a noted list of corrections required for compliance as well as the building owner and contractor for revision and resubmittal.
    2. Revisions that are generated from plan review shall be reviewed prior to securing a building permit.

G. **Addenda and Changes**
    a. It is the responsibility of the permit holder to notify the building official of any and all changes and revisions throughout the project and to provide revised plans, calculations, or other appropriate documents for approval prior to actual construction.

Commercial Plans Review Requirements

Notes:

1. A design professional is required on all of the following:
    a. All Group A, E and I occupancies.
    b. Buildings and structures three stories or more high.
    c. Buildings and structures 5000 square feet or more in area.
2. Plans and specifications submitted to the building official must be of sufficient nature to clearly show the project in its entirety with emphasis on the following:
    a. Building codes compliance
    b. Structural integrity
    c. Life safety assurance
    d. Architectural barriers
3. One wet stamped signed set, two copies and an electronic copy are required before the building official may begin the plan check review. Building additions and remodeling may not require all of the following components for plan submittal and review for permit. The Building official shall determine the specific submittal required.

1. Cover Sheet

a. Project Identification
b. Project address, a location map, & legal description
c. Identification of all design professionals
d. Designate the principal design professional (i.e., the
e. professional who is responsible for project coordination.)
f. Design Criteria List
g. Land use zone
h. Occupancy group
i. Type construction
j. Height and number of stories
k. Square footage
l. Occupant load
m. Live load
n. Snow load
o. Wind load
p. Fire sprinklers

2. Site Plan (to scale)

a. Show all water, sewer, electrical points of connection, proposed service routes, and existing utilities on the site.
b. Show all required parking, drainage, and grading information (with reference to finish floor and adjacent streets).
c. Indicate drainage inflow and outflow locations, and specify areas required to be maintained for drainage purposes.
d. Show north arrow.
e. Provide information on flood plain and special parking information etc.
f. Size and location of all new construction and all existing structures on the site
g. Location of any recreational facilities (i.e., pool, tennis courts, etc.)

h. Established street grades and proposed finished grade.
i. Accessible parking, other locations of public access to the facility, accessible
j. Exterior routes and locations of accessible entrances.

3. **Foundation Plan (to scale)**
   a. Show all foundations and footings.
   b. Indicate size, location, depth, thickness, material, and reinforcement.
   c. Show all imbedded anchoring, such as anchor bolts, hold-downs, and column bases.
   d. Provide a soil report as specified in lifts from acceptable virgin ground when analysis is performed as per design professional.
4. **Floor Plan (to scale)**
   a. Show all floors including basements.
   b. Show all rooms with their use, overall dimensions, and locations of all structural elements and openings.
   c. Show all doors and windows.
   d. Provide door, window, and interior finish schedules.
   e. Show all fire assemblies and area separations.
   f. Show adequate details and dimensions to evaluate means of egress, including occupant loads for each floor, exit arrangement and sizes, corridors, doors, stairs, etc.
   g. Description of uses and the proposed use group(s) for all portions of the building. The design approach for mixed-uses (as applicable).
   h. Fully dimensioned drawings to determine areas and building height.
   i. Adequate details and dimensions to evaluate accessible means of egress, including occupant loads for each floor, exit arrangement and sizes, corridors, doors, stairs, areas of refuge, etc.
   j. Adequate details and dimensions to evaluate the accessible route to areas required to be accessible, including corridors, doors, protruding objects, maneuvering clearances, clear floor space at fixtures and controls, etc.
   k. Accessibility provisions including but not limited to access to services, seating, listening systems, accessible fixtures, elevators, work surfaces, etc.
   l. Accessible plumbing facilities and details.
   m. Tactile signage provided.
   n. Details of required fire protection systems.
5. **Framing plans (to scale)**
   a. Show all structural members, size, methods of attachment, and location and materials for floors and roofs.
   b. Furnish wind, floor, and seismic loads in design calculations.
6. **Exterior Elevations (to scale)**
   a. Show all views.
   b. Show all vertical dimensions and heights.
   c. Show all openings, and identify all materials.

7. **Building Sections and Wall Sections (to scale)**
    a. Show materials of construction and their assembly.
    b. Show vertical dimension.
8. **Mechanical System**
    a. Show the entire mechanical system.
    b. Include all units, their sizes, piping system mounting details, all duct work, and duct sizes.
    c. Indicate all fire/smoke dampers where required.
    d. Complete signed and sealed plans and specifications of all heating, ventilating and air conditioning work.
    e. Complete information on all the mechanical equipment and materials including listing, labeling, installation and compliance with specified quality control standards.
    f. Details on the HVAC equipment including the equipment capacity (Btu/h input), controls, equipment location, access and clearances.
    g. A ventilation schedule indicating the outdoor air rates, the estimated occupant load/1,000 square foot of floor area of the space and the amount of outdoor air supplied to each space.
    h. The location of all outdoor air intakes with respect to sources of contaminants.
    i. Duct construction and installation methods, flame spread/smoke development ratings of material and connector listing and duct support spacing.
    j. Condensate disposal, routing of piping and auxiliary and secondary drain systems.
    k. Required exhaust systems, routing of ducts and termination to the exterior.
    l. Complete details of all Type I and II kitchen hoods, grease duct construction and velocity, clearance to combustibles and fire suppression system.
    m. Details of all duct penetrations through fire resistance rated assemblies including shaft, fire dampers and smoke damper locations.
    n. Method of supplying combustion air to all fuel fired appliances, the location and size of openings and criteria used to size the openings.
    o. Details on the vents used to vent the products of combustion from all fuel burning appliances including the type of venting system, the sizing criteria required for the type vent and the routing of the vent.
    p. Boiler and water heater equipment and piping details including safety controls and distribution piping layout.
    q. Details on the type of refrigerant, calculations indicating the quantity of refrigerant and refrigerant piping material and the type of connections.
    r. Complete details on the gas piping system including materials, installation, valve locations, sizing criteria and calculations (i.e., the longest run of piping, the pressure and pressure drop).

9. **Plumbing System**
   a. Show all fixtures, piping fire protection systems, slopes, materials, and sizes.
   b. Show points of connection to exiting utilities.
10. **Electrical System**
   a. Show all electrical fixtures (interior, exterior, and sites), wiring sizes and circuiting, panel schedules, single-line diagrams, fire alarm systems, communications systems, and fixtures schedules.
   b. Show point of connection to existing electrical service.
   c. Exit Signs/means of egress lighting, including power supply.
   d. Complete signed and sealed (as required by applicable laws) plans and specifications of all electrical work.
   e. Labeling criteria of all electrical equipment.
   f. Lighting floor plan including electrical circuits indicating conduit and wiring sizes.
   g. Power floor plans including electrical circuits indicating conduit and wiring sizes, equipment and disconnect switches.
   h. Exit sign/means of egress lighting location and power supply.
   i. Single line diagram including the available fault current and bus bracing.
   j. Panel board schedule.
   k. Lighting fixture schedule.
   l. Symbol schedule and diagrams.
11. **Specifications to include requirements for:**
   a. Raceway and conduit with fittings.
   b. Wire and cable.
   c. Electrical boxes, fittings and installation.
   d. Electrical connections.
   e. Electrical wiring devices.
   f. Circuit and motor disconnects.
   g. Hangers and supporting devices.
   h. Electrical identification.
   i. Service entrance and details.
   j. Overcurrent protection.
   k. Switchboards.
   l. Grounding.
   m. Transformers.
   n. Panel boards.
   o. Motor control centers.
   p. Lighting fixtures.
12. **Structural Loads**
   a. Provide structural calculations for the entire structural system of the project.
   b. Stamped, dated, and signed; by an Arkansas registered engineer.
13. **Specifications**
   a. In book form, further define in writing the construction components.
   b. Materials and methods of construction.
   c. Exterior and interior finishes and all pertinent equipment types and sizes.

d. Listed equipment specifications and installation requirements.

14. Sealing Plans and Specifications

a. It is the responsibility of the principal design professional to determine that the sealing by project design professional of all plans and specifications submitted to a building official for review is in accordance with state registration law.
b. The sealing can only be done by those who have had direct supervision of the preparation of plans and specifications.

15. Revisions

a. If submitted plans and specifications are not in compliance with the adopted edition of the building code, the building official shall provide to the principal design professional a noted list of corrections required for compliance as well as the building owner and contractor for revision and resubmittal.
b. Revisions that are generated from plan review shall be reviewed prior to securing a building permit.

16. Addenda and Changes

a. It is the responsibility of the principal design professional to notify the building official of any and all changes and revisions throughout the project and to provide revised plans, calculations, or other appropriate documents prior to actual construction.

17. Sprinklers

a. Sprinkler drawings, flows, layout and RPZ information shall be submitted prior to construction, and all indications of placement provided in original plans submitted for review.
b. Complete signed and sealed plans and specifications for the sprinkler system and related equipment.
c. Description and locations of uses within the building.
d. Design details in accordance with the appropriate reference standard (i.e. NFPA 13, 13D, 13R) as referenced by the building code.
e. Design calculations indicating the discharge requirements of the system with evaluation of the arrangement and source of the water supply.
f. Results of a current flow test indicating the location and date of the test.
g. Working drawings indicating all pipe sizes and the spacing between branch lines and sprinklers on the branch line.
h. Material specifications and equipment specifications. All materials used should be verified that they are installed in accordance with their listing.

18. Special Inspections

a. Provisions for required special inspections.

STEP System Information

Contractors building on lots in Weatherton, Tuscan Heights and Meadowlands Subdivisions need to be aware of the following with regard to the installation of STEP tanks. Utilities must be located before work can be started. Call Arkansas One Call to have utilities located by dialing 8-1-1, or 1-800-482-8998. Contact Richard Stone with the City of Lowell at 479/770-2185, Ext. 522, or 479/841-6437 to have sewer main and valve located, or if you have questions regarding STEP systems.

A. Lowell Single Source Provider

1. The City of Lowell will be the sole provider of STEP system installations in the City, including materials, installation, inspection, and testing.

B. Installation Notice

1. The applicant will notify the City when the building is ready for connection to the interceptor tank.
2. A thirty (30) day notice is required.
3. The tank shall be installed after brick and before the driveway and sidewalks are installed.
4. The tank will not be ordered until it has been paid for.

C. Tank Location

1. The tank location shall be pre-approved by the City before breaking ground.
2. No part of the tank shall be closer than five (5) feet to any wall of the house or a retaining wall.
3. The tank will be located in front of or on the side of the house or building.
4. It shall not be located in the back yard or in an area that will be fenced.
5. The tank will be located at an elevation lower than the sewer stub-out to accommodate gravity flow from the house into the tank.
6. The sewer stub-out shall be above the footing, not below it.
7. The plumber will have two-way clean out installed on building sewer stub-out at top-out inspection.

D. Construction Equipment

1. The tank will not be installed until the tank area is free of potential deliveries of construction materials and truck and equipment traffic.
2. No heavy equipment or trucks may be operated above the installed tank.
3. Only hand work will be permitted above the installed tank.

E. Tank Site Preparation and Excavation Materials

1. The homebuilder shall provide a site for the tank installation that is clean of construction debris and rough graded to within six inches of the final yard grade.
2. The site shall be approximately level, with no more than one (1) foot of elevation change across the tank placement area.
3. The excavated materials from the tank excavation will be left onsite, but not in a location that interferes with driveway construction or site access by other construction trades.

4. Disposal of the excavated material and fine grading of the tank area and yard shall be provided by the home builder.

F. Final Grade

1. Final grading and seeding or sod shall be provided by the builder's landscape contractor.

G. Electrical Disconnect Switch and Circuit

1. A separate and independent 20 amp electrical circuit in each home or building shall be provided for service to an exterior wall-mounted disconnect switch located to serve the on-site STEP interceptor tank.
2. Twenty-four (24) to thirty (30) inches of LFMC with two (2) 12-AWG with a ground shall be furnished and installed by the building electrician for connection to the control panel.
3. The electrician is responsible for the connection of circuit to control panel.
4. The disconnect switch should be located at a convenient height (usually five (5) feet above the ground) and where it will be accessible for maintenance.
5. The disconnect switch shall be located on the side wall of the house within fifteen (15) feet of the sewer stub-out and visible from the street.
6. It shall not be located in an area that will be fenced.

H. Electrical Power

1. The controls and pump will be powered by the house or building electrical system and the cost for the electrical power shall be paid by the applicant or occupant of the home.

I. Alarm Light

1. An alarm light and audible alarm will activate when the STEP tank systems are not operating properly.
2. The homeowner or home occupant should push the silence button on the control panel to silence the audible alarm.
3. The alarm light will remain lit until corrected by the repair technician.
4. Contact Richard Stone with the City of Lowell (479)770-2185, Ext. 522, or (479)841-6437 to report the alarm condition.
5. Please minimize water usage until the repair is completed.

J. Damage to System

1. No persons will disconnect, break, damage, uncover, deface or tamper with any structure, appurtenance, pipe, or equipment which is part of the STEP system.
2. No person may add another pipe or building or make any changes to any part of the STEP system.
3. No person may habitually or intentionally introduce excess water or any fluid and/or solid substance or object into the STEP system that harms the system or causes damage to the system components or operations.
4. Any person who violates the prohibitions in this section shall be guilty of a misdemeanor and shall be subject to a penalty of $250.00 for each occurrence plus the associated cost of repair to the STEP system.

K. Illegal Connections

1. No person(s) will make connection of roof downspouts, foundation drains, areaway drains, or other sources of surface runoff of

groundwater to a building sewer or building drain, which in turn is connected directly or indirectly to the STEP system.

L. STEP System Installation Cost

1. Cost of the STEP system includes the purchase and installation of the STEP tank, pump, controls, piping and appurtenances from the on-site STEP system tank location to the pressure main connection point at the street and to the sewer stub-out at the house.
2. The standard price is based on a 16 inch riser, 60 feet of 1 inch PVC, 20 feet of 4 inch PVC and 35 feet of wiring.
3. The lengths of pipe will be field measured at the time of the application and additional cost will be added if longer lengths are required.

M. Establishing Service with the City

1. Once the STEP system is installed and operational, the building contractor must establish service with the City of Lowell before the plumbing and STEP permits will be faxed to the City of Springdale to establish water service.
2. A fee of $50.00 is required to create the new account and to monitor startup.
3. A deposit of $200.00 is required at the time of the service request.
4. The deposit will be held by the City of Lowell and shall be fully refunded to the contractor after the new homeowner has paid the $200.00 deposit and $50.00 new account fee.
5. A monthly fee of $35.00 will be paid by the contractor until the home is sold, at which time the homeowner will pay the monthly fee.
6. Contact Betsy Bennett at 479/770-2185, Ext. 227 should you have questions.

N. Certificate of Occupancy

1. A Certificate of Occupancy will not be issued from the City until an approved STEP system has been installed, inspected, fees paid, and approved by the City.

O. Landscaping

1. Do not plant trees or shrubbery without having your sewer line located by the City of Lowell.
2. Call Richard Stone at (479)770-2185, Extension 522, or (479)841-6437 to request a locate.
3. The City requires 72 hr. notice.

Note: A yard hydrant will be permitted at any time. Live water to the house will not be permitted until the STEP system is installed and operational, and the Contractor has established service with the City of Lowell.

Inspections Checklist

A. Temporary Electric Service

1. Panel properly secured to the structure.
2. Grounding electrode installed, properly sized and attached to ground lug inside panel.
3. Proper acorn clamp on top of eight (8) foot ground rod and rod driven fully into the ground leaving the acorn clamp exposed for inspection.
4. 20 amp GFCI receptacle and breaker installed and properly wired.
5. Conduits above grade must be rated impact resistant (primary and secondary).
6. Heavy duty covers installed over outlets.

B. Footings

1. Approved plans on site.
2. Trash containment must be in place.
3. Sanitary facilities for workers on site. (Must remain on site till just before Final Inspection and must be kept clean through entire project).
4. Driveway cut with gravel in place.
5. Building setbacks and location must match approved plot plan/site plan.
6. Footing layout/dimensions must match approved plans.
7. Footings eighteen (18) inches into native soil with bottoms squared/level. With the width to be determined from Table R403.1 (based on soil classification of 1,500) minimum of two (2) #4 rebar running horizontal in the ditch. Rebar must be side-by-side, not vertical, with appropriate spacing. Chairs, brick, or plastic supports may be used to support rebar from the bottom of the ditch. No ground contact is allowed. Lap joints are to be wire tied and overlap a minimum of twelve (12) inches. Corners are to be bent, not tied.
8. No loose material, mud, organic material in footings. No expansive soil.
9. Expanded footings installed per the approved plans with additional steel as required.
10. Exterior piers and/or interior footings installed per the approved plans with steel.
11. Steel properly lapped, supported and size indicated on approved plans, with grade pins set.
12. Bulkheads installed in stepped footings.
13. Plumbing/electrical sleeves cannot pass through the footings (they must be placed under footing or through foundation wall).
14. Plumbing and electric sleeves must be twice the pipe size of the piping that will pass through it.
15. Concrete encased electrode installed (ufer ground).
16. If fill material is used, it must be compacted, tested, and results furnished to the Construction Services Department.

C. Stem/Grout

1. Verify foundation walls same as approved plans (block or poured stem and size).

2. Vertical placement of steel and size matches approved plans.
3. Horizontal placement of steel is the proper size with approved lap, placed per the approved plans and properly supported.
4. Steel meets required clearance from forms or block sides (1 ½ inch from sides of forms, centered in block).
5. Any required hold downs must be on site and placed in the required locations as shown on the approved plans.
6. Cleanouts installed at base of walls in cells with steel when walls over 48 inches in height.
7. Wall height does not exceed 5 foot allowable for single pour.
8. Foundation drains (if required) are installed with approved moisture proofing of walls.
9. Moisture proofing will require a protective membrane installed to prevent damage at the time of backfill. Note: This can be done as a separate inspection, but is a required inspection.

D. Under Slab Plumbing

1. Drain/waste/vent holding 10' stack water test or 5 psi air test with no greater than 30lb gauge, with 10 psi increments.
2. Sufficient slope of horizontal drain pipes (dependent on size of piping used).
3. Continuous support of pipe for its entire length. If required, 6" of approved bedding material under the piping. Additional bedding material should be on site for use over the piping at the time of backfill.
4. Fixture vent fittings are of approved type (no San-Tees used in a horizontal position).
5. No flat venting (venting must rise 6 inches before horizontal).
6. Proper fittings for vertical to horizontal change in direction.
7. Copper pipes penetrating concrete slabs are to be sleeved.
8. Water piping is continuous with no splices under slab.
9. Cleanouts installed where required.
10. S-traps not permitted.
11. Traps shall not be larger than the drainage pipe.
12. Openings through foundation for piping sleeves need to be sealed around the sleeve and in the annular space around the piping passing through the sleeve (see footing inspection for requirements for sleeving).
13. Full size three-quarter (3/4) inch to first branch and water heater.
14. All PVC to be a minimum of two (2) inches under slab with at least one (1) three (3) inch vent.
15. Water piping pressure requires seventy-five (75) psi on 100lb. air test gauge.
16. All PEX to be installed per manufacture's installation instructions.

E. Under Slab Mechanical

1. Duct work is of an approved type. ASTM 2412 for PVC / Metal AMC 603.8
2. Joints are sealed with approved sealant.
3. Duct work is properly supported with a full bed of fill material 6 inch deep with sufficient fill material and graded 1/8 inch to sump.

4. Ends of duct work where it comes through the floor are supported to prevent settling at the time of slab pour and sealed to prevent infiltration of any materials.

F. Slab Grade

1. Interior of slab area is to be free of vegetation, stumps, etc.
2. Interior turn down footings installed per the approved plan (size/placement/steel).
3. Sub grade properly compacted.
4. Steel properly supported (1½ inch above sub grade).
5. Slab thickness meets the minimum required 3½ inch.
6. Electrical conduits (if installed) sealed to prevent moisture or concrete infiltration.
7. All plumbing piping penetrating slab protected from concrete (wrapped).
8. Traps for showers/tubs boxed out.
9. In-floor heating properly installed and tested, 100 psi (if applicable).
10. Hold downs (anchor bolts) installed 12 inches from the end of each plate piece, every 6 foot of length. For two (2) story structures this reduces to every 4 foot.
11. Slab and termite inspection requires termite tag on-site to be picked up by Inspector.
12. Vapor barrier in place, and wire mesh (fiber mesh requires wire mesh also) reinforcement in place.
13. Finish floor elevation to meet plat or print specifications, or one (1) foot above top of curb at driveway cut, depending on lay of lot.

G. Under Floor Framing

1. Hold downs (anchor bolts) installed 12 inch from end of each plate and every 6 foot of length. For two (2) story structures this reduces to every 4 foot.
2. Post/beam strapping installed including strapping in beam pockets to beams.
3. Proper clearance of earth to wood under beams/floor joists (18 inches to joists, 12 inches to beams).
4. Truss joists installed per the manufacturer's installation instructions.
5. Hangers for truss joists correctly installed and of an approved type.
6. No notches in the bottom or top cords of the truss joists (engineering required if notched).
7. Adequate crawl space ventilation/cross ventilation (1 square foot per 150 square feet) with vents located a minimum of 3 feet from each corner and placed to achieve cross ventilation.
8. Crawl space access installed (18 inches x 24 inches minimum unobstructed opening).

H. Rough-In (Framing/Electrical/Mechanical/Plumbing)

Framing:

1. Building dried in. (House fully and properly wrapped).
2. All glazing (windows) installed.
3. Windows within 24 inches arc of a door must be tempered.
4. Windows in tub enclosure must be tempered if less than 60 inches above tub floor.

5. Windows within 36 inches of a landing or within 60 inches above stair treads must be tempered.
6. Bedroom windows meet egress requirements. Ground level 720 sq. inches, above ground level 820 sq. inches.
7. Window sills for egress not over 44 inches off floor to finished sill height.
8. Check for blocking at interior braced wall panel locations for drywall application.
9. Fire block the stair stringers/drop ceilings/soffits/coves.
10. Draft stop top plate penetrations and horizontal wire runs each 10 foot.
11. Fire block fireplace chases at floor/ceilings assemblies and attic.
12. Fire block every 10 feet horizontally and vertically such as furred spaces.
13. Provide post beam strapping for continuous connection to the foundation.
14. Check studs for over-bored or over notched.
15. Trusses braced per the truss design drawings to be in file.
16. Hurricane straps on trusses and/or roof framing to top plate (including covered patios, decks and porches).
17. Beam sizes per the approved plans and full bearing under beams at bearing points.
18. Provide full bearing under girder trusses to the foundation.
19. Provide proper anchoring of post at covered decks, patios, and porches to slab (no toenailing).
20. Double top plates installed and top plate joints must be lapped 48 inches minimum.
21. Provide ½ inch space around wood beams in concrete beam pocket with approved separation of wood to concrete under beam.
22. Provide attic access (22 inch x 30 inch with 30 inch headroom) and/or 300 lb. rated attic stair.
23. Provide attic ventilation and insure it cross ventilates per code.
24. Provide minimum 6 foot 8 inches headroom at stairs.
25. Check rise and run on stairs. (rise maximum 7¾ inch, run minimum 10 inches) 36 inch minimum width. Max 3/8 inch variation.
26. Anchor bolts to be 12 inches from the end of each plate piece and every 6 foot not less than two (2) in each piece regardless of is length (every 4 foot if multi-level).
27. Protective plates for plumbing/electrical/mechanical where needed (holes drilled 1-1/2 inches or more and holes closer than 1 inch to stud face).
28. Ledgers for decks/patio roof covers must be mechanically attached to the main structure.
29. Attic access ladders for attic installation of HVAC units shall have sufficient capacity to support the weight of one serviceperson plus the heaviest piece of equipment requiring periodic replacement (minimum 300 pound rating).(per Ord. 737)
30. Fireplace enclosures, including unvented decorative log sets and/or zero clearance fireboxes, shall be fire stopped at each ceiling level

or attic space in order to stop the unrestricted path of fire to the attic or other concealed spaces. (per Ord. 695)

31. Roof sheathing proper size/grade nailed at 6 inches on the edge and 12 inches in the field.
32. Fasteners (nails or staples) are not too deep (penetrating the outside of the sheathing).
33. Sheathing is properly spaced (minimum 1/8 inch gap between sheets).
34. Roof design is the same as the approved plans.
35. OSB/plywood at ridge is a minimum of 12 inch wide or blocked under the sheathing if less than 12 inch in width.
36. Shear nailed at 6 inch on edge and 12inch in the field or per the approved plans.
37. Hold downs for Alternate Braced Wall Panels per the approved plans (Special inspection will be required if bolting for hold downs is not installed and drilling/epoxy required).
38. Braced wall panels placed per the approved plans (could include windows, doors etc. added that are no on the approved plans which alters the shear requirements and will need approval for the changes in the shear panel locations).
39. Shear panels installed to provide continuous tie from the foundation to the double top plate at the roof line. (Splices will need to be blocked and nailed per nailing schedule).

Plumbing:

1. Test on gas line/water lines/DWV system (water-75 psi – 100lb gauge) (gas 25 psi – 30lb gauge) (DWV 5 psi – 30lb gauge or water through the roof) (High pressure gas lines require 100 PSI test up to regulator location).
2. Gauges must not be damaged or without glass.10 psi increments maximum.
3. Proper drain size.
4. Proper fittings used for directional changes, vertical to horizontal, horizontal to horizontal.
5. DWV piping/water piping is properly supported (dependent on material used).
6. Trap arms of an approved length (S traps not permitted) and properly sloped.
7. All traps are properly vented and no flat venting.
8. Clothes washer standpipe is 18 inches to 44inches from inlet to weir of drain.
9. Cleanouts installed where required and accessible.
10. Flexible gas line properly installed per the manufacturers specifications.
11. Any unions in gas piping are accessible.
12. All gas appliance connections to include a shut-off within six (6) feet upstream in same room.
13. Couplings in water piping (plastic) are of an approved type and installed properly with proper materials used for bends and stub outs to exterior of walls.
14. Vents terminated in approved locations.

15. Seal the plumbing penetrations (tub traps/around water closets) in the concrete slab.
16. Sediment traps, where required, on gas lines downstream from shut off prior to piping entering appliance.
17. Proper venting for gas-fired appliances.
18. Gas piping to all gas appliances.
19. Outside hose-bibs for proper drainage.
20. Proper slope on all horizontal venting.
21. T & P to outside drain.
22. Water shut off inside the structure at water heater location.
23. Gas line to have insulated union before entering house.

Electrical:

1. No Aluminum wire.
2. Electrical system complete and all circuits made up with grounds tied together using approved mechanical connection.
3. Smoke detectors installed where required and hardwired together on separate circuit (bedrooms, outside sleeping areas, unfinished basements, top of stairs leading to bedrooms, in room adjoining halls).
4. Smoke detectors must be 3 foot from return air or supply air registers (manufacturer's requirement).
5. Service panel properly grounded.
6. Approved bushing used where home runs enter back of service panel, and all panel parts.
7. Wiring is not in contact with abrasive surfaces, such as truss gusset plates.
8. Wiring proper distance from hot surfaces.
9. Two wires of different sizes cannot be under the same lug in the service panel unless approved by manufacturer of service panel.
10. Electrified boxes are not overfilled.
11. Wiring sized for intended use.
12. Bathroom receptacles must be separate 20 amp circuit.
13. Outside receptacles must be on own circuit
14. Outdoor boxes must be weatherproof.
15. Countertop areas greater than 12 inches require a receptacle.
16. Island and peninsular counter space require at least one (1) GFCI protected receptacle.
17. Kitchen countertop receptacles properly spaced. GFCI protected.
18. Provide at least two 20 amp small appliance circuits to kitchen, and no more than 4 foot between receptacles.
19. Provide 20 amp circuit to washer receptacle location in laundry.
20. Provide outlet at front and rear of house (two outside).
21. Receptacles placed per the requirements (every 12 feet, one in hall if over 10 feet in length, all walls over 2 feet must have one).
22. Electrical boxes properly supported.
23. Ground all metal electrical boxes with approved ground screw.
24. All wiring must terminate in an approved box.
25. NM-B (Romex) must extend ¼ inch inside the box with 6 inches of free conductor in the box and 3 inches past the face of the box.
26. Stairways must have illumination. Switched at the top and bottom.

27. Pancake boxes cannot be used as a junction box (termination box only).
28. Wiring properly supported within walls (8 inches from box and every 4 foot).
29. Fax boxes properly supported and rated for ceiling fans. Must be in bedrooms, living areas and dining areas.
30. Electrical wires not bundled for more than 24 inches (creates heat).
31. Provide approved bushings for wiring entering metal boxes.
32. Bond the metal gas and water lines (if no metallic piping, service panel should be labeled indicating "non-metallic water piping, do not use for ground").
33. Bond the building if steel framed.
34. Isolate the grounded conductor in the sub-panel and bond the metal enclosure.
35. Install protective plates on all wiring within 1 inch of the stud face.
36. Seal all unused openings in the outlet box or service panel.
37. Each lavatory must be served by a separate GFCI protected receptacle or one centered between lavatories not greater than 36 inches from either lavatory.
38. Provide convenience receptacle within 6 feet of the equipment location and on the same level (if exterior or in crawl space, receptacle must be GFCI protected).
39. Provide switch (at access location) and light in attic or crawl space for equipment and separate single receptacle for appliance plug-in if only one appliance at the location.
40. Exits require lighting within 6 feet.
41. Sub panels cannot be located in closets or bathrooms.
42. Disconnect for HVAC and water heating equipment at appliance location.
43. A receptacle for service equipment shall be installed within 6 feet of the equipment, and may be installed upstream from the equipment disconnect where provided (per Ord. 695).
44. Recessed cans rated for insulation cover or screened to prevent insulation from lying on top of fixture.
45. All junction boxes must be accessible.
46. Tamper resistant outlets for all outlets.
47. Arc-fault breakers are required for all non GFCI protected or dedicated outlets.
48. A minimum of one (1) carbon monoxide detector will be installed in each residence. (per Ord. 695)
49. Proper location of all switches in relation to door swing.
50. There shall be no more than four (4) convenience duplex outlets on one circuit in the kitchen, utility and workshop. (per Ord. 695)
51. There shall be no more than eight (8) fixtures on light circuit. (per Ord. 695)
52. All major appliances shall be on separate circuits. (per Ord. 695)
53. Any new installation exceeding ten circuit distribution at lighting panels must have two spare circuits and provisions made to use them in case of later alterations or additions. (per Ord. 695)

54. No convenience outlet or appliance outlet shall be installed or operated on a general lighting branch circuit, at any time, in any occupancy. (per Ord. 695)
55. All fixtures used to supply current to general appliances shall be of screw-type terminals.
56. Convenience outlets and general lighting circuits shall be of copper content, and the wire size thereof shall be of not less than #12 A.W.G. wire. (per Ord. 695)

Mechanical:

1. Bath fans and exhaust ducts in tub/shower area and toilet rooms installed properly and vented to an approved location outside the building (fans attached to ducting with aluminum tape).
2. Supply ducts sealed at trunk line, joints, tap-ins and where fastened to boots with an approved mechanical connector.
3. Boots supported on two sides at ceiling.
4. Ducts properly insulated.
5. Provide continuous walkway 24 inches wide from the attic access to the appliance location in the attic with a 30 inch platform in front of the appliance not longer than 20 feet (appliances should be installed and manufacturer's installation instructions provided at this inspection).
6. Dryer vent terminations shall have a minimum clearance of 12 inches above finished grade to the bottom of the vent termination (per Ord. 695)
7. Dryer vents shall have at least a 1/8 inch per foot fall to the termination (per Ord. 695).
8. Dryer vents shall not be trapped (per Ord. 695).
9. Dryer vents shall not be located within 10 feet of HVAC condensing unit (per Ord. 695).
10. Ducts into a garage for heating or cooling are not permitted.
11. Return air properly located to ensure air stratification.
12. Proper insulation of liquid lines from galvanized material.
13. Strike plates over liquid lines at top plate.
14. Dryer vent does not exceed 25 foot limitation (subtract 5 foot for every 90 degree turn and 2½ foot for every 45 degree turn).
15. Dryer vent cannot be screwed together.
16. Dryer vent material approved smooth rigid metal piping in concealed locations.
17. B-vent termination location approved and high enough above roof with a back draft damper.
18. B-vent for water heater minimum 5 feet from top of water heater to termination cap.
19. B-vent must be used in all concealed locations including attics and crawl spaces.
20. Screws cannot penetrate the inside wall of the B-vent.
21. Provide 1 inch clearance of B-vent to combustibles.
22. B-vent extends 6 inch below ceiling line at equipment location if not in concealed space.
23. B-vent properly supported at off sets.

24. B-vent fire blocked (metal) where it passes through floors and ceilings.
25. Provide adequate combustion air for gas fired appliances (1 square inch for every 1000 BTU's upper and lower or if all combustion air drawn from the outside 1 square inch for every 3000 BTU's upper only).
26. Exhaust ducting for range hood approved material with joints lapped properly (KD piping).
27. Appliances in garage on an 18 inch platform and protected from impact.
28. Manufactured fireplaces installed per the manufacturer's installation instructions.
29. Insure proper slope and support on condensate drains and they must terminate in an approved location.
30. All heat generating flue's terminate properly. (Fireplaces, cooking hoods, appliances, etc.).
31. Installation of flexible non-metallic duct and flexible metallic duct material is prohibited, except when a suspended ceiling is to be installed, the final connections not to exceed 6 feet may be flexible duct material (PER Ord. 695).
32. All joints and connections must be mechanically fastened (sheet metal screws or other approved fasteners), and sealed with welds, gaskets, or mastic, and UL approved tape.
33. Ducts shall be suspended to allow at least 12 inches for insulation.
34. Return air platform, plenum, duct or space shall be lined and sealed so as to be made airtight.
35. Vertical dryer vents shall have an accessible clean-out installed at the base of the vertical run of the vent. (per ord. 908)

I. Insulation

1. Proper R value of insulation installed at required locations (attic blown in insulation is checked at final).
2. Bottom plate sealed to slab with silicone caulk.
3. Corners and walls sealed to not allow air infiltration.

J. Yard Lines

General

1. No sizable rocks in backfill material.
2. No trash disposed of in trench.
3. All PVC or plastic gas, water, or sewer service lines require a continuous tracer wire with one end brought out to an accessible location. (per Ord. 789)
4. More than one (1) service in not permitted to be in the same trench and must be separated to meet code minimums.
5. Pipe to be bedded to prevent bellies.
6. Service lines of other than Iron Pipe material shall be sleeved with a minimum of Schedule 40 PVC under all paved or poured parking and driveway areas. (per Ord. 737)

Water Yard Line

1. Water yard line fully supported on 6 inches of approved fill material for its entire length.

2. Accessible water shut off within 24inches of meter location.
3. Water yard line a minimum of 18 inches below finished grade.
4. In line accessible backflow preventions installed.
5. Proper distance maintained from other utilities.

Sewer Yard Line

1. Sewer yard line a minimum of 12 inches below finished grade.
2. Sewer yard line fully supported on 6 inches of approved fill material for its entire length.
3. Proper distance maintained from other utilities.
4. Proper slope on yard line to its inversion location (tank or sewer main).
5. Sewer yard line inspection requires minimum 4 inch line from house to tap, with tracer wire turned up at cleanout.
6. Clean out required just outside foundation with clean out every 100 feet thereafter.
7. Not less than 1/8 inch per foot fall on line larger than 3 inches.
8. Clean-out to be 6 inches minimum above final grade.

Gas Yard Line

1. Gas yard line must be 18 inches below finished grade (plastic or iron piping).
2. Gas yard line fully supported on 6 inches of approved fill material for its entire length.
3. Gas yard line must be scotch coated for burial in the ground or approved plastic.
4. Risers on plastic gas piping must be metal with anode.
5. Test on gas yard line (must hold 25lb for 15 minutes on maximum 30lb gauge).
6. Proper couplings at piping connections. Malleable Iron Minimum.
7. All couplings and abrasions primed and taped with 40ml tape to 6 inches beyond the coupling (primer should be visible beyond the tape).
8. Gas shut off at the house.
9. A dialectic union 6 inches above finished grade prior to the gas piping entering the building.
10. No gas line under any slab.
11. Tracer wire required on plastic pipe with wire showing at both ends.

Electric Yard Line

1. Approved glue used for conduit connection.
2. Ground rods can be lain in trench.
3. All underground lines to be protected in conduit. (per Ord. 695)
4. Proper distance maintained from other utilities.
5. Electrical yard lines must be a minimum of 30 inches below grade and fully supported for their entire length by 6 inches of approved fill material and required warning tape in place.

K. Electric Service Inspection

1. Underground feed conduit secured to building (including ground conduit).
2. All conductors to be properly clamped in meter base and disconnect panel.

3. Aluminum service conductors to be treated with "No-ox, De-ox, Penetrox", or equivalent.
4. Minimum of one breaker installed.
5. Minimum of one GFCI outlet installed.
6. Meter service completed, ready for meter at proper height, 4 feet to 6 feet above grade.
7. Service ground wire will be enclosed in PVC conduit only unless directed otherwise by the Building Official or the energy supplier. (per Ord. 695)
8. Proper distance maintained from other utilities.
9. There shall be an external main disconnect within 5 feet of any electrical meter installed within the City, except in extreme or unusual circumstances it may be located a greater distance by approval of the Building Official.(per ord. 908)

L. Gas Service

1. Gas yard line and pressure test passed, 25 psi.
2. In-house gas pressure test passed, 25 psi.
3. Gas connected to furnace.
4. Thermostat installed (temporary thermostat is allowed)
5. Furnace vented properly.
6. If combo-vent (furnace and water heater), then water heater opening to be taped off or water heater connected.
7. Temporary filter in place.
8. Return air sealed up.
9. Walkway and work platform in place for attic units.
10. Pigtail connected to furnace.
11. Electricity available to furnace (hot receptacle). No extension cords allowed.
12. Attic stairs installed for attic units.

M. Final Inspection

General:

1. Permanent house numbers 4 inch minimum contrasting installed on house and visible from the street.
2. All utilities connected to ensure source of heat, hot water and sanitary facilities.
3. Exterior grading complete providing a positive slope away from the structure.
4. Door between house and garage shall be a twenty minute door, no windows.
5. Continuous handrails on all stairs with four or more risers (handrails must return in at the top and bottom of stairs.
6. Guards on all platforms/decks more than 30 inches above finished floor or grade.
7. Roof covering complete and flashings installed where required.
8. Drip edge installed at roof.
9. Level landings at all exterior doors and top and bottom of stairs. 36 inch minimum travel direction and same width as the door.
10. All exterior wood protected from weather (primed and painted).
11. Exterior post beam connections at patio/deck with approved metal connections.

12. Doors do not swing over a step.
13. Penetrations at exterior into structure or crawl space are sealed.
14. Provide approved hearth at fireplace front where required.
15. Appliances located in garage are protected from impact and on 18 inch platform.
16. No double keyed deadbolts installed.
17. Lockbox installed and key(s) supplied (Commercial).
18. Fire extinguisher(s) in place and inspected (Commercial).
19. Attic access ladder trimmed per manufacturer's specifications.
20. Jacuzzi access panel.
21. All trim, siding, brickwork, roof coverings, interior and exterior finishes to be completed and done in the proper manner.
22. All trash removed and clean up done.
23. Windows to function properly.
24. Weather stripping installed.
25. Doors and hardware to function properly.
26. Attic insulated.
27. All trim, siding, brickwork, roof coverings, interior and exterior finish to be completed and done in proper and common sense manner.
28. Windows, doors and hardware (including weather stripping) to function properly.

Electric:

1. All circuits labeled in the service panel, and all openings "blank" covered.
2. Two different size wires not under the same lug unless approved by panel manufacturer.
3. Two conductors cannot be served by a single breaker.
4. Flexible conduit properly supported at AC units.
5. AC disconnect not located behind the condenser.
6. Flexible electrical conduit to condenser is no longer than 6 feet.
7. All circuit breakers labeled.
8. No foreign material (paint, mud, texture over spray) allowed inside dead front.
9. Switch light and service receptacle for attic mounted H.V.A.C.
10. Disconnects accessible for A/C, water heaters, etc.
11. Tamper resistant covers are required.
12. All the unused breaker locations in the service panel are sealed.
13. Cover plates on all switches/receptacles/unused light fixture locations.
14. Exterior receptacles not located under a porch/or covered entry must have in-use covers.
15. Motor for the jetted tub is accessible.
16. Light fixtures installed and functioning.
17. Smoke detectors and carbon monoxide detector in place, interconnected and functioning properly (must be on dedicated circuit).
18. Exterior Meter box shall have an intersystem bonding connector in place.
19. All receptacles covered, wired properly and operate properly
20. All switches covered, wired properly and operate properly

21. GFCI protection on garage receptacles, front and back outside receptacles, hot tub, Jacuzzi, and all kitchen and bath receptacles within 6 feet of sink, tub or shower, service receptacle at outside HVAC unit.
22. Enclosed fixtures in closets
23. Exit lights installed and operable (Commercial).
24. AFCI protection on all required receptacle circuits per NEC.

Mechanical:

1. B-vent termination caps installed and escutcheon plates installed at ceiling lines.
2. B-vent termination in approved locations (8 foot from vertical surfaces or 2 foot above.
3. Proper clearances maintained from B-vents to combustibles. (Minimum 1 inch).
4. Condensate lines/mechanical lines properly supported.
5. Exhaust fan working.
6. AC condenser is on an approved platform 3 inches above grade.
7. Installation and operation instructions left with equipment.
8. Shut offs in gas line installed at all appliance locations, and must be within 6 feet in same room.
9. Rigid nipple (BIP) installed to the exterior of the furnace housing.
10. Dryer vent termination cannot be screened and 12 inches above grade.
11. All heat generating flue's terminated properly (fireplaces, cooking hoods, appliances, etc.)
12. Proper installation and operation of HVAC unit.
13. Return air sealed.
14. Mechanical chase sealed inside and outside.
15. Trap and vent on primary condensate drain.
16. Bathroom vent fans vented to outside air and mechanically fastened.
17. Return air plenum cleaned out.
18. Secondary drain pans plumbed to conspicuous location (separate from primary drain) or liquid level cut-off switch.
19. Access within 20 feet of unit in attic.
20. Drip pan in required under all attic units.
21. Gas piped to HVAC unit with shut off within 6 foot.
22. Floored walkway to unit in attic.

Plumbing:

1. Water heater pans are required.
2. Water heaters in garage to be placed on 18 inch tall platform (gas or electric).
3. All fixtures set and plumbed with no leaks detected.
4. Proper operation of all fixtures, valves and faucets.
5. Traps under sinks level and trap arms sloped to drain.
6. Angle stops/shut offs installed at lavs/water closets.
7. Base of the water closet sealed.
8. Air gap for dishwasher at kitchen sink or high loop in dishwasher drain.
9. Expansion tank at water heater.

10. T&P drain for water heater full size to exterior, independent, turns down 90 degrees and terminates 6 inches above finished grade at the exterior.
11. Anti-siphon devices installed on hose bibs.
12. Accessible shut off for fireplace/gas log lighter.
13. Sediment traps at the furnace and the hot water heater downstream from the shut off valve prior to piping entering the appliance.
14. All gas appliances to have shut off valve upstream and accessible within 6 feet and in same room.
15. All gas appliances vented properly.
16. Hard pipe through appliance cabinet wall (no flex lines through cabinet wall).
17. Sleeved gas line through brick, block, mortar, etc., calk sealed.
18. inch vent on sewer through roof.
19. Clean-out cut off and capped 6 inches above finish grade.
20. Insulated union on gas riser with sleeve foamed and sealed.
21. Proper hi/lo combustion vent air for gas fired appliances.
22. No pigtails allowed on 220V hot water heater.
23. Tracer wire installed with all plastic yard lines (gas, water and sewer).
24. Thermal expansion protection will be installed on all closed loop water heater systems. (per Ord. 695)
25. Water heaters installed in any location other than garages where leakage could cause damage to building structure, ceiling, floor or wall coverings, will be installed in an approved drain pan with proper discharge. (per Ord. 695)
26. Water pressure to be between 50 psi & 75 psi.

Converting Residential To Commercial

Notes:

1. The items listed below are noted as concerns, questions and/or request for additional information common to the codes evaluation necessary to convert an existing residential structure to a commercial use.
2. A change in building code occupancy classification requires the space where the change in occupancy (use) occurs to meet the current code requirements for the new occupancy (use).
3. A building permit is required to construct, alter, repair, or change the occupancy of the building.
4. This list is somewhat generic but intended to give you and the licensed professionals you use to evaluate the building and its systems an overview of common issues related to the type of project being proposed. The following list of items is intended to assist you in addressing these common code issues but is not intended to be construed to be all-inclusive.
5. Plans will be required at the time of application for building permit and the specific conditions of the building will be reviewed for code compliance to insure minimum life, safety and accessibility standards are met.

A. General

1. Planning Department approval may be required to verify the appropriate land use and adequate parking requirements, prior to the occupancy of the building for commercial use.
2. Change of occupancy in the building from a code classification of Residential, Group R-3 to a Commercial occupancy requires the inspection and evaluation of the structure for compliance with the currently adopted codes and standards applicable to the Group-Commercial occupancy. Such inspection, evaluation and subsequent recommendations for code compliance shall be performed and submitted by licensed professionals.
3. A building permit shall be required to construct, alter, repair, or change the occupancy of the building. (2012 IBC/Arkansas Sect.105)
4. Three copies of drawings shall be submitted to indicate the nature and character of the work to be done and to identify the use of each space in the building. Plans shall be drawn to scale, complete, legible and of adequate detail to verify code compliance (2012 IBC/Arkansas Sect.107) one copy must be wet stamped. In addition an electronic copy is required.

B. Building

1. The conversion of the building from a residence to a commercial occupancy requires the structure to be evaluated to meet the minimum design loads specified for the new occupancy. Residential Occupancies are required to be designed using only a minimum 40 psf floor load in living areas and 30 psf in sleeping rooms. Commercial occupancies require a minimum 50 psf floor load. Verification of the structures ability to withstand the new floor loading as well as other design loading criteria is required. Such evaluation and verification is required to be done by a licensed professional.
2. Interior finishes on walls and ceilings shall have a Class C flame spread. (2012 IBC/Arkansas TBL. 803.9)
3. Verify that landings are located outside the exterior egress doors. Such landings shall be equal in size to the width of door and at the same elevation as the finished floor level inside the space.
4. Stairs or steps require treads with a minimum 11 inch depth and riser heights shall not exceed 7 inches. Minimum risers shall be not less than 4 inches. (Variations not to exceed 3/8 inch)
5. All stairways or steps shall have handrails located not less than 34 inches not more than 38 inches above the leading edge of the tread.
6. Porches and landings are required to be provided with proper guardrails if the height of the porch exceeds 30 inches above grade. Guardrails are required to prohibit passage of a 4 inch sphere.
7. Egress doors are required to provide a clear opening of not less than 32 inches.
8. Required exit doors may be required to be identified with approved exit signs.
9. Directional exit signs may be required where exit signs or the exits themselves are not visible from the exit approach.
10. Door handles, pulls, latches, locks and other operating devices shall be capable of operating with one hand and shall not require tight grasping, tight pinching, or twisting to operate.

11. Required exit doors shall be open able from the inside without use of a key, tool, special knowledge or effort.
12. Glass located in hazardous locations shall be tempered safety glazing.
13. Emergency lighting is required to be provided to illuminate the egress paths from the building. This includes the exterior area of discharge from the building.

C. **Plumbing**

1. A drain pan is required under the water heater if the water heater is located in an area where damage to the building could occur due to a leak.
2. The water heater drain pan is required to be drained by a minimum 1 inch indirect waste pipe and shall discharge over an indirect waste receptor, floor drain or to the exterior of the building.
3. A backflow prevention device is required in all commercial buildings and in each individual tenant space.
4. A mop sink is required to be provided in buildings with a calculated occupant load in excess of 15 persons.
5. A water fountain or bottle water dispenser is required.
6. Separate toilet facilities are required for each sex when the total occupant load, including both employee and customers, is 15 persons or more.
7. Toilets are required to be elongated type with hinged open front type seats.
8. The plumbing system is required to be evaluated by a licensed professional to verify the condition of the system and the continued safe use of such system for a commercial occupancy.
9. A plumbing permit is required for any additions or modifications to the plumbing systems. Plumbing permits may only be obtained by a properly licensed plumbing contractor.

D. **Mechanical**

1. The mechanical system is required to be evaluated by a licensed professional to address the safe utilization of the system for the propose use.
2. Gas fired water heaters and/or gas fired appliances required verification by a licensed professional to confirm the appliance is provided with adequate venting and combustion air.
3. If cooking equipment is to be used, such equipment is required to be provided with an acceptable hood and duct system and an appropriate fire suppression system.
4. Toilet room exhaust vents are required to discharge to the exterior of the building.
5. A mechanical permit is required for any additions or modifications to the mechanical systems. Mechanical permits may only be obtained by a properly licensed mechanical contractor.

E. **Electrical**

1. Electrical outlets shall be properly grounded.
2. The electrical system is required to be evaluated by a licensed professional to verify the safe utilization of such system for the proposed use.

3. An electrical permit is required for any additions or modifications to the electrical systems. Electrical permits may only be obtained by a properly licensed electrical contractor.
4. An electrical load calculation is required to verify the electrical system is adequate to accommodate any new outlets and/or equipment.

F. **Gas**

1. All gas lines shall be inspected and tested by a licensed professional to verify safe condition.
2. A plumbing permit is required for any additions and modifications to the gas lines.
3. Fuel gas permits may be obtained by properly licensed plumbing contractor.

G. **Handicap Accessibility**

1. Handicap access is required to be provided into the building. Handicap ramps shall have a maximum slope of 1/12, shall be 4 foot wide and shall be provided with a level landing at the entrance door.
2. A handicap parking space, 12½ foot wide with an adjacent 5 foot wide loading space is required to be provided and shall be clearly designated as handicap van accessible.
3. Provide 18 inches of clear floor space at the strike side of all interior passageway doors.
4. Provide 24 inches of clear floor space at the strike side of all exterior passageway doors.
5. All passageway doors shall afford a 32 inches clear opening.
6. Provide a 5 foot area of clear floor space in the handicap toilet rooms to provide maneuverability for the wheelchair.
7. Toilet room doors shall not encroach more than 12 inches into the 5 foot clear floor space in the handicap toilet room.
8. Provide handicap grab bars in the handicap toilet room. Such grab bars shall be 1 inch in diameter mounted at 33 inches above finish floor. Such grab bars shall be mounted and capable of supporting a 250 lb. load in any direction.
9. All control devices for light, power, heat, alarms, and etc. shall be mounted no higher than 48 inches from the floor for front access or 54 inches for side access.
10. When separate toilet facilities for men and women are required, both men's and women's rooms are required to be made handicap accessible.

Business License Checklist

1. Fire Lanes marked.
2. Address posted minimum 6 inch numerals.
3. NFPA 704 placards posted.
4. Landings provided both sides of doors.
5. Portable fire extinguishers-Approved type.
    a. Adequate number.
    b. Inspected/tagged.
    c. Adequate type/size.
    d. Mounted.

6. Occupant load posted/observed.
7. AC/DC type exit/exit access signage provided/functional.
8. AC/DC type emergency lighting provided/functional.
9. Extension cord/multi-plug adapters.
    a. Not used as permanent wiring.
    b. Be in good condition.
    c. Not used in series.
    d. Ground provided.
    e. Capacity of appliance to cord.
    f. Not affixed to structure.
    g. Not through structure
    h. Not under door
    i. Not through window.
10. Electrical panel accessible to occupant.
11. All circuits legibly marked in electrical panels.
12. No unprotected openings in electrical panels.
13. All required wiring in conduit.
14. Electrical covers in place.
    a. Switches
    b. Receptacles
    c. Junction boxes
15. Ground-fault circuit-interrupter receptacle provided.
16. Storage properly done.
    a. Flammables.
    b. Compressed gas cylinders.
    c. Electrical panel clearance.
    d. Combustibles within 2 feet ceiling.
    e. Combustible within 3 feet heat source.
    f. Underneath combustible source.
17. Handrails/guardrails provided.
18. Temperature/pressure line provided on water heater.
19. Heating devices properly installed.
20. Exits unlocked.
21. Means of egress free of obstructions.
22. Barriers to limit spread of heat/smoke in the event of fire.
23. Fire walls stenciled above ceiling. "Fire & Smoke Barrier - protect all openings."
24. No Smoking signs posted.
25. Cooking hood extinguishing system inspected/tagged.
26. Alarm system affidavit provided or/current inspection.
27. Sprinkler system affidavit provided or/current inspection.
28. Backflow isolation is provided where required.
29. Food service health department requirements met.