SECTION 5 - COMMERCIAL CONSTRUCTION – MECHANICAL, ELECTRICAL, PLUMBING AND ~~SOLAR~~ OTHER TECHNICAL CODES

5.1.0 GENERAL
Section five ~~reviews~~ consolidates ~~the various~~ local amendments, technical code information related to commercial construction and includes the code requirements, including the mechanical code, electrical code, plumbing code, and the ~~solar~~other technical codes. ~~to the Uniform Mechanical, Plumbing, and Solar Energy Codes. Included in this section are mechanical and plumbing review check lists, gas test requirements, and requirements for solar energy systems licensing.~~

5.2 ELECTRICAL CODE

5.2.1 GENERAL - This section contains information related to compliance with local amendments to the adopted Electrical Code. Local amendments can be found on the City website, www.austintexas.gov, or in the City Code Section 25-12. The Electrical Code applies to all residential and commercial construction within the City of Austin's jurisdiction, as well as electric service provided by the City of Austin's electric utility within the City's extraterritorial jurisdiction (ETJ).

~~4.5.0~~5.2.2 ELECTRICAL REVIEW CHECK LIST
This rule is promulgated to administer and implement the adopted Electrical Code. This rule does not apply to one- and two-family dwellings.
A. The following minimum requirements shall be included in the documents when submitted for electrical plan review:
1. All plans shall be sealed by a professional engineer.
2. Set of specifications.
3. Electrical service load analysis.
4. Emergency generator load analysis.
5. One (1) line diagram of main switchgear.
6. Panelboard and motor control center schedules or on line diagrams.
7. Electrical distribution riser.
8. Emergency distribution riser (may be included in item 7 above).
9. Fault current for all distribution devices indicated in items 7 and 8 with associated specified bracing.
10. Fire alarm riser with devices indicated.
11. Plans shall clearly indicate the location of all electrical distribution equipment.
12. Power, lighting and equipment layout.
13. Electrical notes on plans to substantiate items deleted.

Example: Item 3 deleted from plans because existing 150 ampere, 208/120 volt, three (3) phase electrical service supplying previous tenant is sufficient to carry new load. Item 7 deleted because existing service is to remain as it is currently installed.

Example: Items 3 and 7 deleted from plans because Panel 3H and Panel 3L are existing from

completion of shell building and are sufficient to carry load of tenant remodel.

14. All documentation shall be submitted as an integral part of the plans. All additional and revised documentation shall be submitted as an integral part of the plans and submitted on the same size and type of material as the original plans. (No papers to be stapled, taped, glued, clipped, etc., to plans as documentation).

A. Exceptions:

1. For apartments and condominiums, three (3) stories or less in height, Items 1, 2, 4, 5, 6, 8, 9 or 10 shall not be required.
2. For one (1) and two (2) family dwellings converted to other uses, Items 1, 2, 4, 5, 6, 8, 9 or 10 shall not be required.
3. Commercial tenant finishouts and remodels, office and retail, where base building services and capacities are not exceeded (and noted as such on drawings), Items 1, 3, 4, 5, 6, 7, 8, 9, 10 or 11 will not be required. This does not include commercial tenants that are required to be metered separately, to be serviced by separate service points or common service point on premises and only Items 1, 4, 5, 6, 8, 9 or 10 will not be required.
4. Commercial tenant finishouts and remodels, office and retail, where the design complies with base building specifications, Item 2 shall not be required (and noted as such on drawings).

~~Electrical Code 25-12-111 Section 302~~
~~Processing Ordinance 25-1-82~~

~~4.2.0~~ 5.2.3 SIGN INSPECTION PROCESS - ELECTRICAL SIGNS

This rule is promulgated to administer and implement the provisions of the Sign Ordinance and the Electrical Code. No sign permit for an electrical sign shall receive a final inspection if the electrical permit has not passed final inspection. No sign may be served with electrical power until all required inspections have passed in accordance with the adopted Electrical Code.

~~Land Development Code Chapter 25-10~~
~~Electrical Code 25-12-111 Section 205(a) and 600~~

~~4.3.0~~ 5.2.4 WIRING OVER AND UNDER NAVIGABLE WATER

This rule is promulgated to administer and implement Section 555~~-8~~ of the Electrical Code. The following electric installation requirements shall apply on navigable waters in the corporate city limits:

A minimum of one (1) light station is required along each exterior side of the facility for each 50 feet in the dimension of structure which runs parallel to the shoreline and for each 30 feet which runs perpendicular to the shoreline. Only one (1) light station is required for a dock which is 50 feet or less, is of parallel length and is 30 feet or less from the shoreline.

If only one (1) light station is required, it must be on the end or side farthest from the shoreline.

~~4.6.0~~ 5.2.5 ELECTRICAL UTILITY SERVICE REQUEST

This rule is promulgated to administer and implement requirements for service by the City of Austin Electric Utility.

A. Basic

1. All electric plans will include the following:

Legal address of the lot as assigned by the Transportation and Public Services Department;

volume and page of all recorded easements; recorded plat; contour map (if required by site plan approval process); tree survey (if required by site plan approval process).

2. Determination of aid to construction fee requirements
   a. Voltage
   b. Number of phases
   c. Wire size at service entrance

B. Residential and Tract Development
1. Reproducible preliminary or final subdivision plat, if a recorded plat is not available.
2. Utility plans to include: paving, drainage, water, wastewater, gas and oil pipeline.
3. Erosion and sedimentation control plans

C. Commercial and Industrial
1. Load analysis for individual structures
2. One (1) line electrical diagram
3. Switchgear approval drawings
4. On site utility plan and profiles
5. The date permanent service is required

All plans submitted shall include: the seal of the engineer responsible for the plans, the signature of said engineer, the date of the plan revision, the scale of the drawings and notation of the north direction.

~~4.7.0~~ 5.2.6 ELECTRICAL METERS ON EAVES

When there are practical difficulties involved in relocating, repairing, or rebuilding the electrical service for a structure served by the City of Austin Electric Utility, a licensed electrician may place an existing meter on the eave of the structure under the following circumstances:

A. A permit has been secured for electrical service work;
B. The permitted work requires that the meter be placed on the eave;
C. The electrician has paid all fees associated with placing the meter in its final location;
D. The meter is placed on the eave for a period not to exceed 45 days.

Any electrician who fails to comply with all of the requirements of this rule may be subject to the license suspension provisions of the adopted Electrical Code.
~~Electrical Code 25-12-111 Section 202~~

~~4.8.0~~ 5.2.7 ENERGY CODE COMPLIANCE

This rule is promulgated to administer and implement provisions of the Building Code governing energy code compliance in the electric service area.

Any person requesting electrical service for a new residential or commercial building located in the City of Austin electric service area outside the corporate City limits shall provide evidence of compliance with ~~Appendix~~ Chapter 11~~53~~ of the Building Code through one of the following methods:

A. A report submitted by an engineer that the building complies with the requirements of ~~Appendix~~ Chapter 11~~53~~ of the Building Code or;
B. A report submitted by an architect that the building complies with the requirements of ~~Appendix~~ Chapter 11~~53~~ of the Building Code or;
C. A report submitted by a building inspector certified by the International Code Council ~~Conference of Building Officials~~ that the building complies with the requirements of ~~Appendix~~ Chapter 11~~53~~ of the Building Code or;

D. A request for plan review and inspection submitted by a payment of minimum plan review and building permit fees for plan review and inspection services provided by the ~~Watershed Protection~~Planning and Development Review Department. All energy reviews and inspections shall comply with ~~Appendix~~ Chapter 11~~53~~ of the Building Code.
~~Building Code 25-12-1. Appendix Chapter 1153 Section 530(c)~~

~~4.10.0~~ 5.2.8 UTILITY CONNECTION AND EROSION CONTROL
This rule is promulgated to administer and implement requirements linking installation of erosion and sedimentation controls outside the City Limits. When the connection of City utilities to a site outside the corporate City limits may not occur until the ~~Watershed Protection~~Planning and Development Review Department has certified compliance with erosion and sedimentation controls, the ~~Watershed Protection~~Planning and Development Review Department shall send notice of this requirement to the Utility Customer Service Office and the Building Official. No person shall authorize the temporary or permanent connection of electrical power to the subject location until the ~~Watershed Protection~~Planning and Development Review Department has issued written authorization to connect temporary or permanent electrical power.

~~4.11.0~~ 5.2.9 ELECTRICAL WORK BY MECHANICAL CONTRACTORS
This rule is promulgated to administer and implement the requirements of the Electrical Code. ~~It replaces an interpretation adopted on December 15, 1988.~~
All licensed air conditioning and refrigeration contractors, and mechanical contractors who demonstrate that equipment replaced and reconnected is of the same or lesser amperage may perform this work in Austin without securing an electrical license.
A. The new construction of environmental air conditioning/commercial refrigeration, process cooling or heating systems begins after the first connection on the line side of any listed appliance.
B. Air Conditioning and Refrigeration Contractors and mechanical contractors may replace and reconnect environmental air conditioning/commercial refrigeration, process cooling or heating systems or component parts of the same or lesser amperage. On replacement environmental air conditioning, commercial refrigeration, process cooling or heating systems where the electrical disconnect has not been installed and is required by the code, the Air Conditioning and Refrigeration Contractor may install a disconnect directly on the replacement system and reconnect the system.
C. Control wiring of 50 volts or less may be installed and serviced by a licensed Air Conditioning and Refrigeration Contractor.
D. Line voltage wiring is not within the scope of the air conditioning and refrigeration license or City-issued mechanical license.
E. All component parts may be serviced or replaced by an Air Conditioning and Refrigeration Contractor or City-licensed mechanical contractor.
F. All electrical work shall be performed in accordance with the adopted Electrical Code.
~~Section 25-12-111 of the Austin City Code of 1981. Section 25-12-111-301(b); 25-12-111-208; 25-12-111-205(a); 25-12-111 Article 100(c)(c)~~

~~4.12.05.2.10 Alternative Equivalent Compliance for Exterior Lighting~~

~~I. GENERAL~~

~~A. Purpose and Intent: The standards of ARTICLE 2.5 are intended to provide high quality exterior lighting to:~~

~~1. Meet the intent in Sections 1.1 and 2.1 of Chapter 25-2 Subchapter E of the Land Development Code~~

~~2. Protect the outdoor environment and adjacent residents by reducing light pollution (also called sky glow) and light trespass (often described as light shining across property lines).~~

~~3. Allow for design creativity in exterior lighting and accommodate applications of new lighting technology, such as LEDs.~~

~~II. EXTERIOR LIGHTING: ACCEPTABLE ALTERNATIVES FOR FULLY-SHIELDED OR FULL CUT-OFF FIXTURES~~

~~THE FOLLOWING FIXTURE / APPLICATIONS QUALIFY AS FULLY-SHIELDED OR FULL CUT-OFF UNDER SUBCHAPTER E, SECTION 2.5 LIGHTING:~~

~~1. Fully louvered or "hooded" fixtures such as bollards, step lights or pathway lights, when installed below 36 inches above grade and with fixture lumens less than 1,800.~~

~~2. Lighting which is shielded by a permanent element of a building. Examples of this application include:~~

~~a. Non-cut off and non-shielded fixtures installed with a fixed, external means of shielding.~~

~~3. DIRECT VIEW LIGHTING is bare bulb lighting, neon lighting or neon-like LED lighting typically used for accent lighting, lighting outlining a building or site element (includes any bare bulb installed without an enclosure or housing surrounding the bulb). DIRECT VIEW LIGHTING shall be allowed under AEC, subject to the following:~~

~~a. DIRECT VIEW LIGHTING shall emit no more than 250 lumens per linear foot.~~

~~b. Total lumen output of DIRECT VIEW LIGHTING shall be included in the maximum exempt lumen calculation and shall be subject to the limits shown above.~~

~~c. DIRECT VIEW LIGHTING must be turned off after curfew. Curfew hours are defined as hours from 30 minutes after close of business to 30 minutes before opening of business. Where no business exists on a site, curfew hours shall be from 1100pm to 0500am.~~

~~4. All fixtures under this section must comply with all other requirements of Chapter 25-2, Subchapter E of the Land Development Code~~

~~III. PERMITTED ALTERNATIVE EQUIVALENT COMPLIANCE METHODS~~

~~A. This section describes permitted methods for Alternative Equivalent Compliance for Chapter 25-2, Subchapter E, Section 2.5 Exterior Lighting~~

~~B. For the ALTERNATIVE EQUIVALENT COMPLIANCE method, the exterior lighting is designed to comply with ONE of the following:~~

~~1. Latest adopted version of U.S. Green Building Council (USGBC) LEADERSHIP IN ENERGY AND ENVIRONMENTAL DESIGN(LEED) Sustainable Site Credit 8.~~

2. Latest adopted version of ILLUMINATING ENGINEERING SOCIETY (IES) INTERNATIONAL DARK-SKY ASSOCIATION (IDA) MODEL LIGHTING ORDINANCE (MLO).

3. Latest adopted version of AUSTIN ENERGY GREEN BUILDING COMMERCIAL RATING LIGHT POLLUTION REDUCTION section.

C. Documentation for demonstrating compliance is as follows:
1. All documentation required by the selected option (USGBC LEED, IES MLO or AEGB program) shall be submitted as part of the AEC request;
2. An Affidavit sealed by a registered Architect or Engineer certifying that the AEC proposal is in compliance with the selected option.

D. Limitations on Use of Alternative Equivalent Compliance for Exterior Lighting
1. All luminaires located within 100 feet of a property zoned SF-5 or more restrictive zoning district shall not be eligible for AEC.

2. The following are NOT eligible for AEC and must be full cut off (or fully shielded):

a. Lighting in surface parking lots, uncovered levels of structured parking (typically the top-most parking level) and related drives (whether surface or structured), roadways and similar vehicle drive areas.
b. Luminaires exceeding 1,800 fixture lumens, regardless of fixture type.
c. All building entrances and exits intended for staff or employee use (not a public entrance).
d. Any fixture mounted X' above grade of finished floor elevation.

IV. Definitions

ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
CURFEW-hours	Hours from 30 minutes after close of business to 30 minutes before opening of business. Where no business exists on a site, curfew hours shall be from 1100pm to 0500am.
DIRECT-VIEW-LIGHTING	Bare bulb lighting, neon lighting or neon-like LED lighting typically used for accent lighting, lighting outlining a building or site element. Includes any bare bulb installed without an enclosure or housing surrounding the bulb.
FULLY-SHIELDED	A luminaire with an opaque housing, opaque closed top, and no lens or lamp extending below the housing shall be deemed to comply with the FULL-CUTOFF requirement of this ordinance. No photometric test report will be required and annotations of FULL CUTOFF will not be required on the product data sheet. Any fixtures meeting this requirement shall have ZERO lumens above 90 degrees. Fully recessed downlights shall meet this qualification. Additionally, a luminaire may be shielded by external features of the building.

~~IECC~~	~~International Energy Conservation Code~~
~~IES~~	~~Illuminating Engineering Society~~
~~LUMINAIRE Also LIGHT FIXTURE~~	~~A complete lighting unit consisting of a lamp or lamps and ballast(s) (when applicable) together with the parts designed to distribute the light, to position and protect the lamps, and to connect the lamps to the power supply.~~
~~DUAL OPTIC LUMINAIRE~~	~~A luminaire with two separate optical compartments, for example combined uplight and downlight light distribution.~~ ~~A dual optic luminaire shall be considered fully shielded provided the following:~~ ~~□ The non-complying portion of the luminaire is wired for control to turn off after curfew.~~ ~~□ The non-complying portion of the luminaire is less than 1,800 total lumens.~~ ~~□ The non-complying portion of the luminaire complies with the MAXIMUM LUMENS FROM EXEMPT LUMINAIRES~~ ~~□ The downlight portion of the luminaire complies with the definition of a fully shielded luminaire and all other portions of this ordinance.~~
~~TOTAL FIXTURE LUMENS~~	~~The cumulative total of initial lumens emitted by all lamps contained within a single luminaire.~~
~~USGBC~~	~~U.S. Green Building Council~~
~~LEED RATING SYSTEM~~	

~~CUT OFF CLASSIFICATION (PRIOR TO INTRODUCTION OF B.U.G. RATING)~~	
~~FULL CUTOFF~~	~~A luminaire light distribution where zero candela intensity occurs at or above an angle of 90 degrees above nadir (straight down). Additionally, the candela per 1,000 lamp lumens does not numerically exceed 100 (10%) at or above a vertical angle of 80 degrees above nadir. This applies to all lateral angles around the luminaire.~~
~~CUTOFF~~	~~A luminaire light distribution where the candela per 1,000 lamp lumens does not numerically exceed 25 (2.5%) at or above an angle of 90 degrees above nadir (straight down), and 100 (10%) at or above vertical angle 80 degrees above nadir. This applies to all lateral angles around the luminaire.~~
~~SEMI CUTOFF~~	~~A luminaire light distribution where the candela per 1,000 lamp lumens does not numerically exceed 50 (5%) at or above an angle of 90 degrees above nadir (straight down), and 200 (20%) at or~~
~~NON CUTOFF~~	~~A luminaire light distribution where there is no candela limitation in the zone above maximum candela.~~
~~BUG RATING~~	

~~LIGHTING ZONES~~

~~LZ1~~	~~*Areas with intrinsically dark landscapes.* Examples are national parks, areas of outstanding natural beauty, or residential areas where inhabitants have expressed a strong desire that all light trespass be strictly limited. Classification in this zone is highly unlikely and requires directors written approval.~~
~~LZ2~~	~~*Areas of low ambient brightness.* These may be outer urban and rural residential areas. Roadways may be lighted to typical *residential* standards.~~
~~LZ3~~	~~*Areas of medium ambient brightness.* These will generally be urban residential areas. Roadways will normally be lighted to typical traffic route standards.~~
~~LZ4~~	~~*Areas of high ambient brightness.* Normally these are urban areas having both residential and commercial use and experiencing high levels of night time activity. Classification in this zone is highly unlikely and requires directors written approval.~~

5.3 ENERGY CODE
5.4 FIRE CODE
~~5.3~~ 5.5 MECHANICAL CODE

~~5.3.1~~ 5.5.1 MECHANICAL REVIEW CHECK LIST

A. This rule is promulgated to administer and implement the adopted Mechanical Code. This rule does not apply to one- and two-family dwellings.

B. Mechanical plans shall be submitted in duplicate and shall be drawn to scale. Plans shall be in print or ink of sufficient clarity to show that the proposed installation will conform to the provisions of all applicable codes and rules. Whenever applicable, the plans shall show the following:

1. Site plan: locations of any mechanical equipment in relation to public utility easements and property lines.
2. Equipment schedule: listed capacity of air handlers and exhaust fans. Show openable windows.
3. Ventilation: demonstrate evidence of compliance through natural or mechanical ventilation.
4. Duct layout.
5. Detail of proposed fire dampers, with manufacturer's installation instructions.
6. Location and size of combustion air.
7. Condensate drains locations and sizes.
8. Locations of automatic shutoff devices or approved smoke control systems and detectors.
9. Show complete route of return air stream.
10. Details of air handler enclosures, access, all rated mechanical assemblies.
11. Gas equipment: flue details, rise and length, termination, location and the type of classification.
12. Kitchen hoods: details of all duct enclosures, equipment schedule and locations, fire suppression and the heating appliances under the hood.
13. Exits from mechanical and machinery rooms as well as boiler rooms.

14. Materials: ducts, duct insulation, drains, hangers or supports, with detail on flame spread and smoke density characteristics.
15. Location of roof access.

~~Mechanical Code 25-12-131 Section 302 Processing Ordinance 25-1-82~~

~~5.7.0~~ 5.5.2 MECHANICAL PERMITS OUTSIDE THE CITY LIMITS

A. This rule is promulgated to administer and implement the cost containment resolution adopted by the City Council on July 14, 1988.

B. The City Council cost containment resolution of July 14, 1988 stipulated that the Department of Building Safety would provide mechanical inspection services after September 15, 1988 in the following circumstances:

1. The mechanical permit was purchased prior to September 15, 1988 AND/OR
2. The location is in the corporate city limits AND/OR
3. Full inspection is required under the terms of the Municipal Utility District contract including the following districts:

Maple Run MUD	Northern No. 1
Southwest Austin No. 1-4 (Circle C)	Davis Springs
South Austin MUD No. 1 (Village at Western Oaks)	Moore's Crossing
South Central Austin Growth Corridor (Southland Oaks)	Fern Bluff
Riverplace	Decker Creek 1-5
North Travis County No. 1	North Travis County 1-3

C. The Resource Management Department will require mechanical inspections and permits for rebates and loans on sites listed above. Electrical inspections will be required for any mechanical equipment replacement in the electric service area inside or outside the City limits where an electrical permit is required.

D. Mechanical installations outside the City limits will not be subject to permit or inspection unless one of the conditions listed above is applicable. ~~This rule became effective September 15, 1988 and is posted for informational purposes only.~~

~~5.10~~ 5.5.3 MOBILE HOME MECHANICAL SYSTEM

This rule is promulgated to administer and implement the Mechanical Code.

When a mobile home is placed on a lot or in a mobile home park in the city limits, heating/ventilation/and air conditioning equipment shall be installed in accordance with the Mechanical Code. A mechanical permit shall be secured by a registered air conditioning and refrigeration contractor before any mechanical work is performed.

~~5.3~~5.6 PLUMBING CODE

~~5.4~~5.6.1 PLUMBING REVIEW REQUIREMENTS

Utility Site Plan Details (property lines must be noted, including any easements that may exist.)

A. Water Service Data.
   1. Water service locations.
   2. Water service size.
   3. Water meter size and location.
   4. Location of fire-line back flow prevention valves. (Isolate fire system from potable water.)
   5. Landscape water supply with back flow prevention valves noted.
   6. Location of back flow prevention valves for standpipes and fire sprinklers.
   7. Materials.

B. Gas Service Data.
   1. Gas service size and location.
   2. Materials and size per UPC.

C. Sewer Service Data.
   1. Sewer line location, connection, size, grade of fall with clean outs per code.
   2. Sewer line load shall be calculated by fixture units.
   3. Location of existing and proposed sanitary sewer manholes and flow line elevations at manholes, with grade of fall.
   4. Storm sewer location, connection, size and grade of fall.

D. Plumbing Layout Diagram.
   1. Building and vent system
   2. Layout diagram on floor plan.
   3. Size of building drain and vents.
   4. Size of branch drains and vents.
   5. Location of grease trap, interceptor or chemical dilution tank.

E. Plumbing Water Riser Diagram.
   1. Plumbing Water Riser Diagram shall include:
      a. Water supply entry to building.
      b. Water supply size.
      c. Descriptive notes as to total fixture served (includes existing).
      d. Hose bibs shall have a note indicating back flow protection.
      e. Materials.
      f. Building supply to be sized according to Table 10-2 or Appendix.
   2. Necessary Documentation of Special Equipment, Materials and Installations.

F. Plumbing DWV Riser Diagram. Plumbing DWV Riser Diagram shall include:
   1. Finished floor levels (first, second, etc.)
   2. Size of waste lines and locations.
   3. Size of vents and point of connections.
   4. Total fixture unit load including existing fixtures.
   5. Note drains that require trap seal protection.
   6. Clean outs noted where required.
   7. Size and termination of vent.
   8. Materials.

G. Roof Drains.
   1. Locate roof drains with overflow drains or scuppers.

2. Roof drains and overflow drains shall be run independently of each other to outside of building to an approved point of disposal.
3. Roof storm drainage riser diagram, with piping sized and noted on plans per Appendix D of the Uniform Plumbing Code. Include total square footage of area drained (if applicable).
4. Type of materials to be used. (Cast iron, PVC, etc.)

H. Boilers (Water Heater Systems). When a boiler has been identified as required by state boiler law, the following is required.
1. Piping detail to and from boiler.
2. Detail of venting system.
3. Access and combustion air to boiler.

I. Fixtures (Conservation). City of Austin Water Conservation Standards shall be met.

J. Water Meter Sizing Documentation (Alternative Method). The use of Appendix A of the Plumbing Code for sizing is recognized as an alternative method. Full documentation of the mathematical calculations required.

K. Newly Installed Combination ~~Water~~Waste and Vent System. The necessary documentation for new combination waste and vent systems:
1. One-fourth (¼) inch scale isolated plumbing lay out diagram for the combination waste and vent system.
   a. All pipe sizes of the combination waste and vent system shall be labeled.
   b. When two (2) or more combination waste and vent systems are in the plan set, each system shall be documented independently by a plumbing lay out diagram.
2. One-fourth (¼) inch scale isolated plumbing riser isometric diagram of combination waste and vent systems.
   a. All pipe sizes of the combination waste and vent system shall be labeled.
   b. When two (2) or more combination waste and vent systems are in the same plan set, each system shall be documented independently by a plumbing layout diagram.
   c. A typical of main drain, branch with trap and tail pipe with reduction noted is required.
   d. Location of required vents: cleanouts of approved size.

L. Changes and Additions to Combination Waste and Vent Systems. Necessary documentation for changes or additions to an existing system.
1. One-fourth (¼) inch scale isolated plumbing lay out diagram of present system with projected changes or additions to the present system.
   a. All pipe sizes of present system and the changes or additions to the present system shall be labeled.
   b. When two (2) or more systems are presented in the plan set, each system shall be documented independently by a plumbing lay out diagram.
2. One-fourth (¼) inch scale isolated plumbing riser isometric diagram of the present system with projected changes or additions to the present system.
   a. All pipe sizes of the combination waste and vent system shall be labeled.
   b. When two (2) or more systems are presented in the plan set, each system shall be documented independently by a plumbing riser diagram.
3. A typical of main drain, branch with trap and tail pipe with reduction noted is required.

M. Tenant Finish Outs and Remodels. Restaurants, Pubs and Lounges
1. Water Service Data (New Water Service for tenant finish outs and remodel):
   a. Service location.
   b. Service size.
   c. Meter size and location.
   d. Existing fixtures on water system.
2. Drainage Service Data:
   a. Drainage line location, load connection, size, grade of fall.
   b. Drainage line load shall be calculated by fixture units (including existing installations).
   c. Building Drain (Layout Diagram):
      i. Layout diagram on floor plan.
      ii. Building sewer sized.
      iii. Building branch sewer sized.
   d. Drainage System Vents (Layout Diagram):
      i. Floor drain vents.
      ii. Hub drain vents.
      iii. Grease interceptor vents:
         - Tank vent
         - Down stream line vent from tank
3. Plumbing Water Riser Diagram:
   a. Water service entry to building.
   b. Water service size.
   c. Descriptive notes as to fixtures served.
   d. Hose bib shall have a note indicating back-flow protection.
4. Plumbing Sewer Riser Diagram:
   a. Finished floor levels (first, second, etc.).
   b. Drain line size and location.
   c. Vent line size and location.
   d. Special plumbing items (commode carriers, e.g.).
   e. Floor drains that require trap primers.
   f. Clean outs noted on urinals and sinks.
   g. Roof line noted.

~~5.5.0~~5.6.2 GAS TEST REQUIREMENTS

A. A natural gas pressure test shall be required as described in the Plumbing Code under the following circumstances:
   1. Gas plumbing work has been performed; or
   2. There is evidence of a gas leak; or
   3. A building is declared substandard and gas service has been disconnected for more than 30 days; or
   4. A building is declared dangerous; or
   5. Any condition stipulated by the natural gas supplier.

B. The City shall not approve natural gas service to a building which has not complied with this rule.

~~5.6.0~~5.6.3 CROSS CONNECTION CONTROL

For Cross Connection Control requirements see City Code Section 15-1.

~~This rule is promulgated to administer and implement the Plumbing Code and Rules and Regulations for Public Water systems adopted by the Texas Department of Health in 1988. This rule supplements the Cross Connection Control rule adopted April 7, 1989.~~

~~1. Any person performing plumbing in the corporate city limits is required to test all new backflow prevention devices evident in the area of the building or on the site in which the plumbing work is performed. The test shall be performed by a certified tester approved by the Building Official.~~

~~2. All persons performing plumbing in a building or on a site served by the City of Austin Water and Wastewater Utility shall comply with the testing requirements listed in #A above.~~

~~3. All persons performing plumbing in a building or on a site served by a water district and/or municipal utility district which purchases water from the City of Austin Water and Wastewater Utility shall comply with the testing requirements listed in #A above.~~

~~4. No backflow prevention is required for fire hydrants located on private property that are tied only to the domestic water system and use only the domestic water system: (Based upon an opinion issued on July 8, 1988 by the International Association of Plumbing and Mechanical Officials).~~

~~B. This rule shall not be construed to relieve any person from compliance with provisions of the Plumbing Code or State law. This rule is effective June 1, 1989.~~

~~C. Diagrams 1 through 8 in Appendix I of this manual shall constitute examples of approved methods for cross connection control for irrigation systems.~~

~~D. Double check valves may be installed as a method of cross connection control when approved by the Texas Department of Health.~~

~~E. All newly installed backflow prevention devices shall be tested by a certified tester upon installation. All newly installed high hazard backflow preventors shall be tested on an annual basis and a copy of each test report shall be filed with the Building Official within ten days of the annual test of the high hazard backflow preventor.~~

~~5.7.0 PROHIBITION OF LEAD IN PLUMBING~~

~~A. Any pipe, solder, or flux used after June 19, 1988, in the installation or repair of (i) any public water systems, or (ii) any plumbing in a residential or nonresidential facility providing water for human consumption which is connected to a public water system, shall be lead free. This subparagraph (a) (3) shall not apply to leaded joints necessary for the repair of cast iron pipes. For purposes of the subparagraph, the term "lead free," when used with respect to solders and flux refers to solders and flux containing not more than 0.2% lead, and when used with respect to pipes and pipe fittings, refer to pipes and pipe fittings containing not more than 8.0% lead.~~

~~B. Double check valves may be installed in accordance with Diagram No. 9, contained in Appendix I of this manual, if the device is listed by the manufacturer for underground installation.~~

~~5.8.0~~5.6.4 MOBILE HOME PLUMBING

A. This rule is promulgated to administer and implement the ~~adopted~~ Plumbing Code.

B. When a mobile home is placed on a lot or in a mobile home park in the city limits or water/wastewater service area, all gas, water and drain/waste/vent connections are required to be tested in accordance with the Plumbing Code. A plumbing permit shall be secured by a registered master plumber before any plumbing work is performed.
~~Plumbing Code Section 1008, 1106, 1206(b), and Appendix E~~
~~This rule will be effective October 1, 1990~~

~~5.9.0~~5.6.5 PLUMBING IN THE RIGHT OF WAY

A. This rule is promulgated to implement, license and permit requirements for plumbing in the right of way.
B. All plumbing installed in the right-of-way shall be inspected by the ~~Watershed Protection~~Planning and Development Review Department prior to connection. No backflow prevention device shall be installed in the right-of-way.

5.7 PROPERTY MAINTENANCE CODE
5.8 SOLAR CODE

~~SECTION 4 ELECTRICAL CODE~~
~~4.1.0 GENERAL~~
~~Section Four describes the requirements for obtaining an electrical license, provides an electrical review checklist, explains the sign inspection process and addresses wiring over and under navigable water.~~

~~4.4.0 ELECTRIC LICENSE INFORMATION SHEET~~
~~This rule is promulgated to administer and implement the license provisions of the Electrical Code.~~
~~A. Every application for an original license or any character of renewal license shall be made upon a form furnished by the building official.~~
~~B. Every application for any such license shall state the full name, date of birth, weight, height, color of eyes, color of hair, sex, residence and business address of the applicant. Every original application for a license shall specify the experience of the applicant and briefly describe the applicant and shall state whether the applicant has heretofore been licensed as an electrician, and if so, when and by what state, county, or city; whether any such license has ever been suspended or revoked; whether an application has never been refused, and, if so, the date of and the reason for such suspension, revocation or refusal.~~
~~C. Every application shall be accompanied by the license and/or examination fee prescribed by ordinance.~~
~~D. Every application for an original license must include letters verifying experience in the field of electrical wiring to substantiate the required number of years of electrical experience. The letters must be signed by the master electrician under which the applicant has performed electrical work or by the Supervisor of Electrical Inspections of the City in which the applicant has performed electrical work and holds a valid license. All letters must be original and on company or City letterhead. Examinees will be notified by mail, if approved, when and where the examination will be administered. Notification to applicants will be mailed to the address~~

~~which appears on the application.~~
~~E. Any applicant for a renewal master electrician's license may elect to apply for an inactive master electrician's license. An inactive master electrician may not secure permits to perform electrical contracting work; provided, however, that an inactive master electrician licensed under this chapter may be licensed as a mater electrician upon payment of the master electrician's license fee and meeting the requirements of the Electrical Code.~~
~~F. Electrical exams other than unrestricted master exams will be held the second Wednesday of every month, except May and November. Prior to the exam, the applicant needs to submit proof of eligibility and pay the exam fee. Applicant may apply, submit proof of eligibility, and pay the exam fee before 12:00 noon the last Wednesday of the month, to be eligible to take the exam the following month. If the applicant has taken the exam before and decides to take the exam again, the applicant needs to apply and pay the exam fee before 12:00 noon the last Wednesday of the month to be eligible to take the exam the following month. The applicant will be notified by mail the location and time of the exam. Notification will be mailed to address on the application. If the applicant has paid the exam fee and decides to cancel, the applicant needs to make notification of cancellation before 12:00 noon the last Wednesday of the month prior to the month of the exam, or the applicant will be required to pay another exam fee when a new application is made to take the exam again.~~
~~G. Unrestricted master electrical exams are given the second Wednesday of May and November. The applicant needs to submit proof of eligibility and pay the exam fee in time to appear before the Electric Board, which meets the last Wednesday of the month. If the applicant has taken the exam before and wishes to take the exam again, the applicant will be required to apply and pay the exam fees no later than the last Wednesday, 12:00 noon, of April to take the May exam or of October to take the November exam. The applicant will be notified by mail the location and time of the exam. The notification will be mailed to the address on application. If applicant has paid the exam fee and wishes to cancel the exam, the applicant needs to make notification of cancellation, by 12:00 noon the first Wednesday of October for the November exam, or the applicant will be required to pay another exam fee when a new application is made to take the exam.~~
~~Electrical Code 25-12-111 Section 205~~

~~4.9.0 RECIPROCAL LICENSES~~
~~(Interpretation Adopted by the Electrical Board on May 24, 1988)~~
~~A. In order to obtain a reciprocal license, an applicant for an Austin electrical license shall meet the following requirements:~~
~~1. Passed the equivalent licensing exam in a city which Austin has accepted for reciprocation.~~
~~2. Held the equivalent license for one year in the city which Austin has accepted for reciprocation. This does not apply to journeyman electricians.~~
~~3. Provide proof that A and B above are true by submitting evidence from the city which Austin has accepted for reciprocation.~~
~~4. Complied with all Electrical Code requirements regarding age and experience. One year as a master electrician may substitute for two years as a journeyman electrician.~~
~~5. Pay all fees required for a new license applicant.~~
~~B. The Building Official shall not discuss any case involving reciprocal licensing and the reciprocating city unless the Building Official has notified the license applicant of code compliance problems in writing and provided an opportunity to appeal in accordance with~~

~~Chapter 25-1 of the Austin City Code.~~
~~Electrical Code 25-12-111 Section 206~~

~~**Application for Electrician's License**~~
~~(See Figure 4-1 in Appendix I of this manual)~~

~~**Electrician's Record**~~
~~(See Figure 4-2 in Appendix I of this manual)~~

SECTION 4 – RESIDENTIAL CONSTRUCTION

4.1.0 GENERAL

4.2.0 RESIDENTIAL APPLICATION

4.3.0 RESIDENTIAL DEMOLITION

4.4.0 RESIDENTIAL SUBMITTAL REQUIREMENTS

4.4.1 New, Addition, Remodel
4.4.2 Fences, Landscape, Swimming Pools
4.4.3 Express
4.4.4 Volume Builder
4.4.5 Subchapter F
4.4.6 Structural Drawings/memorandum

4.4.7 Visitability

~~4.4.7.1 Visitability Applicability - The Visitability ordinance 20140130-021 applies to the following structures:~~

~~i. New single family structures~~
~~ii. Duplexes~~
~~iii. Townhouses and~~
~~iv. Any structure that constitutes a dwelling unit per the International Residential Code (IRC).~~

~~These ordinance requirements do not apply to remodels and additions.~~

~~4.4.7.2 Waiver of exterior visitable route provision for certain properties.~~

~~a. Requires a survey performed by a Registered Professional Land Surveyor. This survey will be provided at the time of application submittal when seeking a waiver for lots that exceed ten-percent positive (10%+) or if a switchback is required for compliance.~~

~~4.4.7.3 Trees and Impervious Coverage~~

~~a. Trees and impervious coverage shall be accounted for when designing and installing the exterior visitable route. Trees and impervious coverage shall not be a limiting factor of design and compliance with all codes and ordinances shall be the responsibility of the designer and installing contractor.~~

~~4.4.7.4 Prior to development means prior to home construction.~~

a. On regular and irregular shaped lots or legal tracts, the slope will be measured perpendicular from the midpoint of the front property lines to the intersection with the nearest property line.
b. On a lot or legal tract with more than two dwelling units, the percent slope will be measured from the rear of each structure perpendicular to the midpoint of the front property line for the public or private street.

4.4.7.5 Switchbacks - For the purpose of the visitability ordinance, a switchback is a route which exceeds 2 landings and turns 90° or more.

4.4.7.6 Compliance required at plan review.
a. Detailed floor plans must be prepared by a Texas Registered Architect of a Certified Building Designer holding a National Council of Building Designers Certification seal. The floor plans will need to identify the following structural components as either directional signals or notes:
i. Visitable dwelling entrance and components thereof.
ii. Visitable bathroom route and components thereof.
iii. Visitable bathroom and components thereof.
b. Electrical and Blocking

i. Electrical switches and outlets and environmental components and bathroom blocking will not be required to be detailed on the floor plans as a general note will satisfy this requirement.

c. Detailed plans for the "exterior" visitable route will be required for new permits applied for on or after July 1, 2015. The plans will indicate the point of origin with the required landing through the point of entrance to the structure with the required landing. Ramp details will be required when constructed with materials other than concrete. Handrails will be required on the plans when exceeding 8.33% slope (ref. IRC R311).

4.4.7.7 Compliance Required at Field Inspection Verification
a. Exterior Visitable Route
i. Shall include landings with a cross-slope not to exceed 2% and one or more of the following paths.
1. garage,
2. driveway,
3. public street, or
4. public sidewalk.
ii. A landing will be required at the point of origin.
iii. The minimum width and depth of the exterior visitable route is thirty six inches.
iv. Ramps and landings are to comply with the International Residential Code.

v. The person responsible for compliance determines the point of origin.
vi. Alternative Method of Compliance and Modifications – detailed floor plans may be field approved provided the proposed method of compliance meets the intent of the code.
vii. Property owners will not be required to redesign or relocate the structure to comply after the building permit has been issued.

b. Visitable light switches, receptacles, and environmental controls
i. Shall be located at the entry level in accordance with the adopted electrical code and will include light switches and the environmental controls located no higher than 48 inches.
ii. Light Switches and environmental controls shall be measured from the top of the device to the unfinished floor.
iii. Outlets must be a minimum of 15 inches above the floor. This measurement is from the bottom of the device to the unfinished floor.
iv. Floor outlets are allowed in addition to compliant outlets located 15 inches above the floor.

c. Visitability bathroom route. One bathroom must be accessible by a route with a minimum clear opening of thirty-two inches beginning at the visitable entrance and continuing through the habitable areas connecting the living room, dining room, and kitchen, and be level with beveled changes at the door thresholds. Split-level or sunken floor areas would not be required as part of the visitable bathroom route.

d. Visitable dwelling entrance location will be determined by the Responsible Party for compliance with this ordinance. Threshold No Step Entrance code interpretation CI2013-0002 (http://www.austintexas.gov/page/development-regulations) is also an approved method of compliance as is an approved manufactured barrier-free access system pertaining to the threshold. The clear opening of the visitable dwelling entrance is at minimum thirty-two inches. Landings are to comply with the requirements of the International Residential Code. A permanent site built ramp against the threshold with less than one-half inch in vertical rise, that doesn't exceed 12 inches in length, located on the exterior side, doesn't exceed 8.3% slope and has landing will be an approved transition at the exterior entry at the visitable dwelling entrance.

e. Visitable bathroom
i. 30 inch minimum clear opening.
ii. 2 inch x 6 inch blocking centered 34 inches from the floor.

4.4.7.8 Equivalent alternative
a. Compliance with the latest addition of the ICC accessibility standards A117.1 (Publiccecodes.cyberregs.com/ICC/ANSI/2009/a117p1/).

4.4.7.9 Doors
a. Door swings must meet the intent of the code.

4.4.7.1 Visitability Applicability - Visitability applies to any structure that constitutes a dwelling unit per the International Residential Code (IRC).

4.4.7.2 Waiver of exterior visitable route provision for certain properties.

A. The slope waiver shall be determined by the slope between the highest point to the lowest point prior to development. Slopes greater than 10% are exempt from R320.7 exterior visitable route.

B. On a lot or legal tract with more than two dwelling units, the slope will be measured from the rear of each structure perpendicular to the midpoint of the front property line or the public or private street. Slopes greater than 10% are exempt from R320.7 exterior visitable route.

C. Switchback waiver shall be determined by the slope between the elevation of the finished floor at the visitable dwelling entrance and all potential origin points as defined in section R320.7. The horizontal distance shall be reduced by 6 ft to account for landings. Ramp slopes to meet the intent of the code.

D. Topographic information shall be performed by a Texas Registered Professional Land Surveyor. This survey shall be provided at the time of application submittal. The registered or certified design professional shall substantiate request for waiver.

4.4.7.3 Compliance required at plan review.

A. Detailed plans must be prepared by a Texas-Registered Architect or a Certified Building Designer holding a National Council of Building Designers Certification seal.

B. Exterior ramp details will be required when constructed with materials other than concrete.

4.4.7.4 Compliance Required at Field Inspection Verification

A. Exterior Visitable Route

1. The minimum width of the exterior visitable route is thirty six inches.

Alternative Method of Compliance and Modifications of approved plans –A modification to the approved plans may be field approved provided the proposed method of compliance meets the intent of the code. Documentation shall be provided for the permit record.

3. Property owners will not be required to redesign or relocate the structure to comply after the plans have been approved for building permit.

B. Visitable light switches, receptacles, and environmental controls

1. Light Switches and environmental controls shall be a maximum of 48 inches above the floor. This measurement is from the top of the device or box to the unfinished floor at rough inspection.

Outlets must be a minimum of 15 inches above the floor. This measurement is from the bottom of the device or box to the unfinished floor at rough inspection.

3. Floor outlets are an acceptable alternative where installation of compliant wall outlets is not feasible.

C. Threshold No Step Entrance code interpretation CI2013-0002 is an approved method of compliance as is an approved manufactured barrier-free access system pertaining

to the threshold. A permanent site built ramp against the threshold with less than one-half inch in vertical rise, that doesn't exceed 12 inches in length, located on the exterior side, doesn't exceed 8.3% slope and has landing will be an approved transition at the exterior entry at the visitable dwelling entrance.

4.4.7.5 Equivalent alternative
Compliance with the latest addition of the ICC accessibility standards A117.1

4.4.7.6 Doors
Door swings shall not impede the 30" x 30" clear floor space within the visitable bathroom.

4.4.8 Mobile/Manufactured Homes

4.4.8.1 Manufactured Home Definition

Manufactured home means a structure, transportable in one or more sections, which in the traveling mode is 8 body feet (2438 body mm) or more in width or 40 body feet (12 192 body mm) or more in length, or, when erected on site, is 320 square feet (30 m2) or more, and which is built on a permanent chassis and designed to be used as a dwelling with or without a permanent foundation when connected to the required utilities, and includes the plumbing, heating, air-conditioning and electrical systems contained therein: except that such term shall include any structure that meets at the requirements of this paragraph except the size requirements and with respect to which the manufacturer voluntarily files a certification required by the secretary (HUD) and complies with the standards established under this title. For mobile homes built prior to June 15, 1976, a label certifying compliance to the Standard for Mobile Homes, NFPA 501, in effect at the time of manufacture is required.

4.4.8.2 Manufactured Home Code requirements
All manufactured homes within Austin City limits must comply with Austin City Code Section 25-2, Article 14, and the following:

A. Austin City Code Section 25-2-1207 Location Of Mobile Homes Other Than in Mobile Home Park.
   (1) Except as otherwise provided in this section, a person may not place, maintain, or occupy a mobile home in the city other than in a mobile home park that is licensed under this division, or in a mobile home subdivision.
   (2) This Section does not apply to a mobile home that is:
      (i) located on a construction site and is used as a field office during construction;
      (ii) a mobile home sales lot; or
      (iii) a mobile home that is under construction or stored at a mobile home manufacturing plant.

B. Mobile Home Electrical, Plumbing, and Mechanical Systems
   (1) When a mobile home is placed on a lot or in a mobile home park in the city limits, electrical, plumbing, heating, ventilation, and air conditioning equipment shall be installed in accordance with the adopted Electrical Code, Plumbing Code or Mechanical Code. A permit shall be secured by a registered electrician, plumber, or air conditioning and refrigeration contractor before any work is

performed.

4.4.8.3 Texas Manufactured Housing Standards Act.

(1) Section 1201 Manufactured Home.

(A) "HUD-code manufactured home" means a structure:

i. constructed on or after June 15, 1976, according to the rules of the United States Department of Housing and Urban Development;

ii. built on a permanent chassis;

iii. Designated for use as a dwelling with or without a permanent foundation when the structure is connected to the required utilities;

iv. Transportable in one or more sections; and

v. In the traveling mode, at least eight body feet in width or at least 40 body feet in length, or when erected on site, at least 320 square feet;

(B) including the plumbing, heating, air conditioning, and electrical systems of the home; and

(C) does not include a recreational vehicle as defined by 24 C.F.R. Section 3282.8(g).

(2) Section 1201.452 Seal or Label Required.

A) Except as otherwise provided by this subchapter, a person may not sell, exchange or lease-purchase or negotiate for the sale, exchange, or lease-purchase of a used manufactured home to a consumer unless the appropriate seal or label is attached to the home.

B) If the home does not have the appropriate seal or label, the person must:

i. apply to HUD for a seal;

ii. pay the fee; and

iii. submit to the department a copy of any written disclosure required under Section 1201.455(a).

4.4.8.3 Texas Administrative Code, Vol. 10, Chapter 80, Permanent Foundation.

(1) A foundation which meets the requirements of 80.21 of the Administrative Rules of the Texas Department of Housing and Community Affairs (TDHCA), 10 Texas Administrative Code, Chapter 80 (relating to Requirements for the Installation of Manufactured Homes) and was constructed according to drawings, as required by that section, which states that the foundation is a permanent foundation for the manufactured home. A sealed foundation letter required from a Registered Design Professional or submittal of the TDHCA Form T –Notice of Installation by a qualified TDHCA inspector. TDHCA will issue the Statement of Ownership and Location (SOL).
(www.tdhca.state.tx.us/mh/installations.htm)

4.4.8.4 Technical Code and Land Development Code requirements:

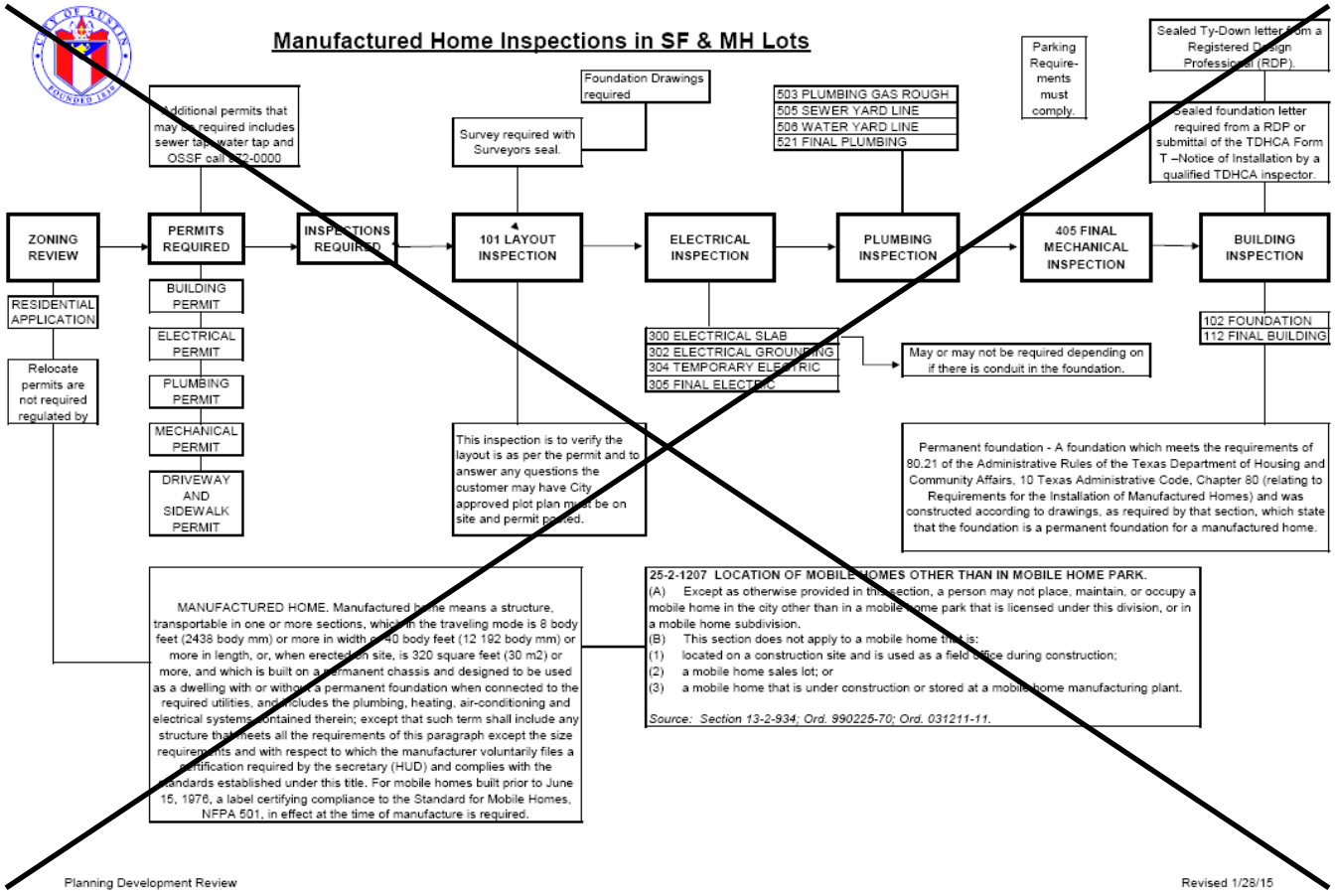
(A) Zoning Review - Submit a Residential Application to Residential Review staff of Planning and Development Review Department.

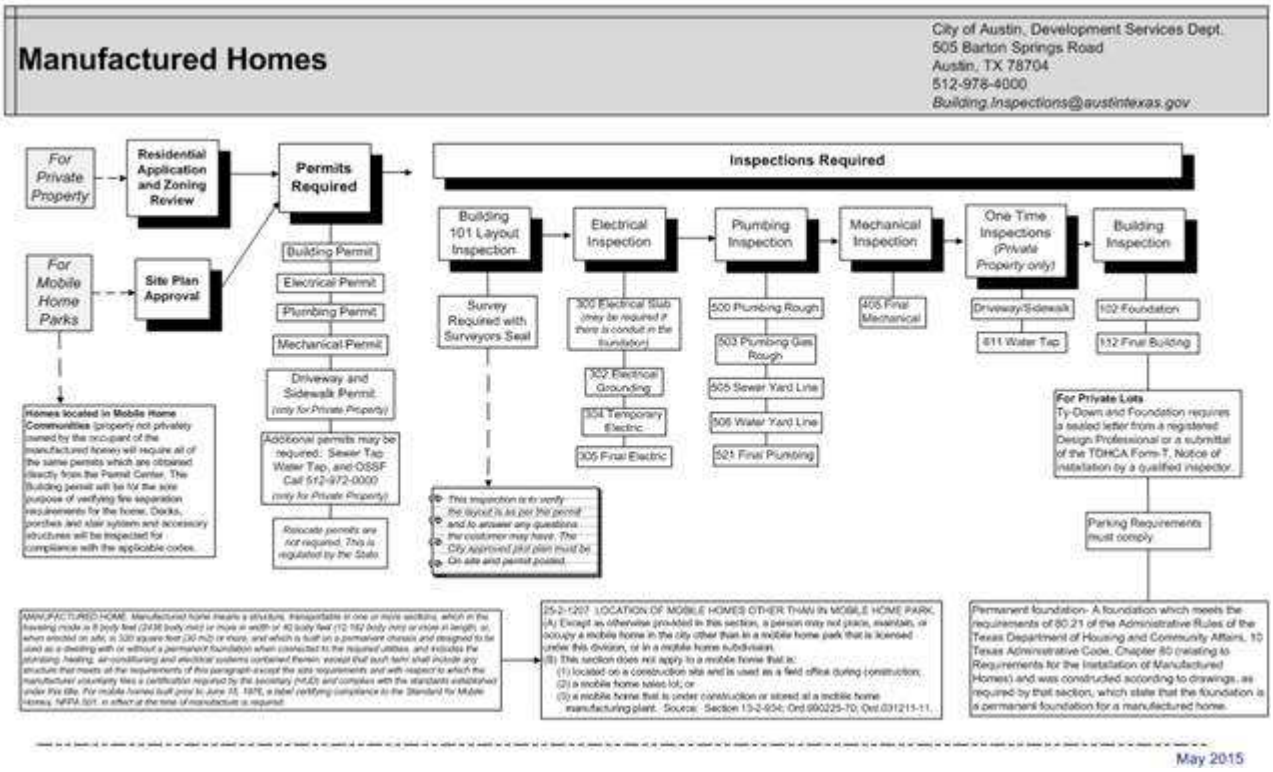
(B) Permits Required include: Building, Electrical, Plumbing, Mechanical, Driveway

and Sidewalk Permit, and additional permits that may be required for a sewer tap and water tap.

4.4.8.5 Manufactured Homes - Inspections

The following inspections will be required for manufactured homes.





a) 101 Layout Inspection – This inspection is to verify the layout is as per the permit and to answer any questions the customer may have. City approved plot plan must be on site and permit posted.
    1) Foundation Drawings required.
    2) Survey required with surveyors seal.
b) Electrical Inspections
    1) 300 Electrical Slab –may or may not be required depending on if there is conduit in the foundation or not.
    2) 302 Electrical Grounding
    3) 304 Temporary Electric
    4) 305 Final Electric
c) Plumbing Inspections
    1) 503 Plumbing Gas Rough
    2) 505 Sewer Yard Line
    3) 506 Water Yard Line
    4) 521 Final Plumbing
d) 405 Final Mechanical Inspection
e) Building Inspections
    1) 102 Foundation
        a. Sealed foundation letter required from a Registered Design Professional or submittal of the TDHCA Form T –Notice of Installation by a qualified TDHCA inspector. TDHCA will issue the SOL.
        b. Sealed Ty-Down letter from a Registered Design Professional.
        c. Parking Requirements must comply.

2) 112 Final Building

4.5.0 ENGINEERING REQUIREMENTS

4.6.0 CODE VIOLATIONS

4.7.0 FLOOD PLAIN INFORMATION

4.8.0 INSPECTIONS