

CHAPTER 47 - CONSTRUCTION CODE

Subchapter A - Building Code

Section A-1 - Definitions

47.100. Definitions. As used herein, the following words, terms, and phrases shall have the following meanings:

1. Accessory Structure. A building, the use of which is incidental to that of the main building and which is located on the same lot.

2. Balcony (Exterior). An exterior floor system projecting from a structure and supported by that structure, with an additional independent supports.

3. Basement. That portion of a building which is partly or completely below grade.

4. Building. Building shall mean any one and two-family dwelling or portion thereof, which is used, or designed or intended to be used for human habitation, for living, sleeping, cooking or eating purposes, or any combination thereof, and shall include structures accessory thereto.

5. Building, existing. Existing building is a building erected prior to the adoption of this code, or one for which a legal building permit has been issued.

6. Building Official. Building official is the officer or other designated authority charged with the administration and enforcement of this code.

7. Ceiling height. Ceiling height shall be the clear vertical distance from the finished floor to the finished ceiling.

8. Court. Court is a space, open and unobstructed to the sky, located at or above grade level on a lot and bounded on three or more sides by walls or a building.

9. Deck. An exterior floor system supported on at least two opposing sides by an adjoining structure and/or posts, piers, or other independent supports.

10. Dwelling. Dwelling is any building which contains one or two "Dwelling Units" used, intended, or designed to be built, used, rented, leased, let or hired out to be occupied, or which are occupied for living purposes.

11. Dwelling Unit. Dwelling unit is a single unit providing complete independent living facilities for one or more persons including permanent provisions for living, sleeping, eating, cooking and sanitation.

12. Family. Family is an individual, two or more persons related by blood, marriage or law, or a group of not more than any five persons living together in a dwelling unit. Servants having common housekeeping facilities with a family consisting of an individual, or two or more persons related by blood, marriage or law, are a part of the family for this code. **Don't like this wording. If you have 5 children and a mom and dad that is 7. Does this mean they are not a family? What is the purpose of the limit?**

13. Grade. The finished ground level adjoining the building at all exterior walls.

14. Grade Floor Window. A window located such that the sill height of the window is not more than 44 inches (1118 mm) above or below the finished grade adjacent to the window.

15. Grade Plane. A reference plane representing the average of the finished ground level adjoining the building at all exterior walls.

16. Greenhouse. An enclosed detached accessory structure consisting primarily of light-transmitting materials and used exclusively for growing plants.

17. Guardrail system. A system of building components located near open sides of elevated walking surfaces.

18. Habitable Room. Habitable room shall mean any room meeting the requirements of this code for sleeping, living, cooking or dining purposes, excluding such enclosed places as closets, pantries, bath or toilet rooms, hallways, laundries, storage spaces, utility rooms and similar spaces.

19. Handrail. A horizontal or sloping rail grasped for guidance or support.

20. Hollow Masonry. Load-bearing or nonload-bearing construction using masonry units where the net cross-sectional area of each unit in any plane parallel to the bearing surface is less than 75 percent of its gross cross-sectional area. Hollow masonry units shall conform to ASTM C 90, C 129 or C 652. **WHAT IS THIS REFERENCE??**

21. Kitchen. Kitchen shall mean an area used, or designated to be used, for the preparation of food.

22. Listed and Listing. Terms referring to equipment which is shown in a list published by an approved testing agency qualified and equipped for experimental testing and maintaining an adequate periodic inspection of current productions and whose listing states that the equipment complies with nationally recognized standards, when installed in accordance with the manufacturer's installation instructions.

23. Loads, Live and Dead. Dead loads are the weight of the walls, partitions, framing, floors, ceilings, roofs and all other permanent stationary construction entering into and becoming a part of the building. Live loads are all loads except dead and lateral loads.

24. Manufactured Home. A factory-built structure containing two or more units, that is manufactured or constructed under the authority of 42 United States Code Section 5401 and is to be used as a place for human habitation but which is not constructed or equipped with a permanent hitch or other device allowing it to be moved other than for the purpose of moving to a permanent site, and which does not have permanently attached to its body or frame any wheels or axles. For the purpose of these provisions and this Chapter only, a mobile home shall be considered a manufactured home.

25. Occupied Space. The total area of all buildings or structures on any lot or parcel of ground projected on a horizontal plane, excluding permitted projections as allowed by this code.

26. Solid Masonry. Load-bearing or nonload-bearing construction using masonry units where the net cross-sectional area of each unit in any plane parallel to the bearing surface is not less than 75 percent of its gross cross-sectional area. Solid masonry units shall conform to ASTM C55, C62, C73, C145 or C 216. **WHAT IS THIS REFERENCE?**

27. Stack Bond. The placement of masonry units such that head joints in successive courses are horizontally offset at less than one-fourth the unit length.

28. Story. Story is that portion of a building included between the upper surface of any floor and the upper surface of the floor next above, except that the topmost story shall be that habitable portion of a building included between the upper surface of the topmost floor and ceiling or roof above.

29. Story Above Grade. Any story having its finished floor surface entirely above grade except that a basement shall be considered as a story above grade when the finished surface of the floor above the basement is:

- A. More than 6 feet (1829 mm) above grade plant.
- B. More than 6 feet (1829 mm) above the finished ground level for more than 50 percent of the total building perimeter; or
- C. More than 12 feet (3658 mm) above the finished ground level at any point.

30. Townhouse. Townhouse is a single-family dwelling unit constructed in a row of attached units separated by property lines and with open space on at least two sides.

31. Window. Window shall mean a glazed opening, including portions of glazed doors.

32. Wood Structural Panel. A structural panel product composed primarily of wood, and meeting the requirements of DOC PS 1 or DOC PS 2. Wood structural panels include all-vaneer plywood, composite panels containing a combination of vaneer and wood-based material, and mat-formed panels such as oriented strand board and waferboard.

33. Yard. Yard is an open, unoccupied space, other than a court, unobstructed from the ground to the sky, except where specifically provided by this code, on the lot on which a building is situated.

Section A-2 - Basic Code Information

47.200. Building Permit. A building permit must be obtained before beginning construction, alteration or repairs, except ordinary repairs, using application forms available at City Hall. See Section 42.1300.5 of the Holts Summit City Code.

47.210. Ordinary Repairs Defined. Any nonstructural repairs, and do not include addition to, are repairs and renovation which entails replacement or relocation of plumbing, electrical mechanical, sprinkler systems, means of egress, or change in use.

47.220. Inspection. Called inspections are required PRIOR to the placement of concrete for footings and foundations, framing, and a final inspection for occupancy, which will include storm water grading.

INSERT INSPECTION, PERMIT, LOT WIDTH, SET BACKS, ETC.

Section A-3 - Building Planning

47.300. Design. Buildings and structures and parts thereof are to be designed to support safely all loads, including dead loads without exceeding allowable stresses or deflections of components.

1. A building contractor may design and build a multiple family dwelling house, flat, or apartment containing not more two families per Section 327.091 (b) of the Missouri Revised State Statutes and the Holts Summit Building Code. A building containing more than two dwelling units shall be designed by an architect licensed by the State of Missouri. **Our Code said 4; this says 2. WHICH ONE?**

2. All commercial structures must be designed by a registered professional engineer of Missouri. The plans must show the name and the registration number of the engineer. **ENGINEER AND/OR ARCHITECT?**

47.305. Ceiling Height. Habitable rooms, except kitchens, shall have a ceiling height of not less than 7/6" for 50% of the required area, with no portion of the required ceiling area less than 5'0". Exception:

1. Beams and girders may project down 6".
2. Kitchens, baths, and hallways 7'.
3. Basements ceiling height 6/8".

47.310. Climatic Criteria.

1. Roof live load (lbs. per S.F.) 20 lbs. - the roof snow load is not additive with the live load.
2. Roof snow load (lbs. per S.F.) 20 lbs.
3. Wind pressure (lbs. per S.F.) 18 lbs. horizontal
4. Seismic Zone #1 - No requirement
5. Weathering Potential - Severe
6. Frost Line Depth - 24"
7. Termite Infestation - Moderate
8. Decay - Moderate
9. Weathering for concrete - Severe
10. Radon Resistant Const. Zone 2 - No requirement

47.315. Doors and Hallways. The exit door shall be side-hinged not less than 3' wide and 6'8" in height.

47.320. Exits.

1. One exit is required from each dwelling unit.

2. Emergency egress openings: Every sleeping room shall have one openable window or exterior door. The window shall have a sill height not to exceed 44" above the floor, and have a net clear opening of 5.7 square feet for the second story and 5.0 square feet for grade floors. The minimum net clear opening height is 24" and the minimum net clear width is 20".

47.325. Flame Spread and Smoke Density. Flame spread rating not to exceed 200 except trim materials and not to materials less than 1/28 inches cemented to walls and ceilings where they will burn no faster than paper.

47.330. Floor Dead Loads. Actual weight of materials, or use weight listed in building code.

47.335. Floor Live Loads. Per the following schedule:

1. Balconies (exterior) (lbs. per S.F.) 60
2. Decks (lbs. per S.F.) 40
3. Fire escapes (lbs. per S.F.) 40
4. Garages (lbs. per S.F.) 50
5. Attics (no storage) (lbs. per S.F.) 10
6. Attics (limited storage) (lbs. per S.F.) 20
7. Dwelling Habitable spaces (lbs. per S.F.) 40
8. Sleeping rooms (lbs. per S.F.) 30
9. Stairs (lbs. per S.F.) 40

47.340. Foam Plastic.

1. General

- A. Flame-spread rating of not more than 75.
- B. Smoke-developed rating not more than 450.

2. Foam plastic shall be separated from the interior of the building with 1/2" gypsum or equivalent material.

3. Attics and crawl spaces: where entry is made for surface of utilities, protect with any of the following materials:

- A. 1 1/2" mineral fiber insulation
 - B. 1/4" thick plywood
 - C. 3/8" particleboard
 - D. 1/4" handboard
 - E. 3/8" gypsum
- 4. Foam filled doors are exempt from coverage requirements.
 - 5. Foam Interior Trim: minimum
 - A. Density 20 lbs. per cubic foot.
 - B. Maximum thickness 1/2" maximum width 4 inches.
 - C. Trim not to exceed 10% of wall.

47.345. Garages, attached.

- 1. Opening Protection: Openings from a private garage directly into a bedroom is not permitted. Other openings between the garage and residence shall be equipped with 1 3/8" solid wood doors or equivalent. Steel doors and solid wood doors with recessed panels are approved.
- 2. Separation required: The garage shall be completely separated from the attic and residence with 1/2" gypsum or equivalent applied to the garage side.
- 3. Floor Surface. Attached garage and carport floor surfaces shall be 3 1/2" of concrete sloped toward the door or floor drain to facilitate the movement of liquids away from the residence door.
- 4. Furnaces or furnace rooms shall not be located within a sleeping room.

47.350. Landings. A minimum 3' x 3' landing shall be required on each side of a egress door. Exception: At the top of any interior flight of stairs, provided the door does not swing over the steps.

47.355. Ramps. All egress ramps shall have a maximum slope of 1" in 8". Handrails shall be provided on one side of any ramp exceeding 1" in 12" slope. A 3' x 3' landing shall be installed at the top, bottom, and changes in ramp direction.

47.360. Room sizes. Each dwelling unit shall have one habitable room not less than 150 S.F. of floor area. Other habitable rooms shall have an area of not less than 70 S.F. Each kitchen shall have not less than 50 S.F. The minimum horizontal dimension shall be not less than 7 ft.

47.365. Smoke Detectors.

1. Place a smoke detector as follows:
 - A. One in each bedroom.
 - B. One outside each sleeping area.
 - C. One on each story of the Building.
 - D. One in the basement or cellar. Hard wiring is required per the National Building Code.

47.370. Stairways.

1. General: All treads shall have a nosing of approximately 1" when the risers are closed. The risers shall be uniform in height, not to exceed 3/8" difference. Stairways shall not be less than 3 feet in clear width. Handrails may project 3 1/2" into the 3' width. The maximum riser height is 7 3/4" and the minimum tread width is 20".

2. Winders: Winders are permitted. The width of the tread at a point 12" from where the treads are narrower is not less than 10". The minimum width is 6".

3. Spiral stairs. Spiral stairs are permitted. Minimum width is 26" and each tread shall have a 7 1/2" tread at 12" from the narrow edge. All treads to be identical and not to exceed 9 1/2" in height. A headroom of 6'6" shall be provided.

4. 6'8" headroom shall be provided down stairways measured vertically from the nosing of the tread.

5. Handrails and guardrails. See Section 47.400.

A. The minimum height of handrails is 30" and a maximum of 38" measured vertically from the nosing. Provide on one side of enclosed stairways. The handgrip shall not exceed 2 5/8" in cross-sectional dimension. The handrail shall have a space of not less than 1 1/2" between the wall and the handrail. Open sided stairs shall have guardrails on each side, not less than 36" high with openings not to exceed 4" spacing.

B. Guardrails. Place along side porches, balconies or raised floor surface in or attached to the Building exceeding 30" above grade or floor surface below. The guardrail shall be not less than 36" high, with openings not to exceed 4" spacing.

C. A handrail is required along stairs exceeding 3 risers.

47.375. Toilet, bath and shower spaces. Every water closet, bathtub or shower shall be installed in a room which will afford privacy to the occupants.

47.380. Walls, common. The common walls between living units of two family dwelling shall be continuous from the foundation to the underside of the roof sheathing, deck or slab and shall extend the full length of the common wall. The required fire separation wall shall be 1 hour rated with a sound retention D.B.A. rating of not less than 45. A typical wall per #WP 3341 of Gypsum Association Design Manual, 12th Edition, is as follows:

1. Gypsum Wallboard, Wood Studs.

A. Base layer. Base layer 1/4" gypsum wallboard applied parallel to each side of 2x4 wood studs 16" o.c. with 4d coated nails 1 1/2" long, 0.099" shank, 1/4" heads, 12" o.c.

B. Face layer. Face layer 1/2" type X gypsum wallboard, veneer base or vinyl faced gypsum board on each side applied parallel to studs with 1/4" beads of adhesive 2" o.c. and 6d coated nails 1 7/8" long, 0.0915" shank, 1/4" heads, 6" o.c. top and bottom only. Stagger base layer joints 16" o.c. each side. Stagger face layer joints 24" o.c. from base layer joints. (load bearing)

C. Other walls with D.B.A. ratings of 45 or more, listed in the Gypsum Association Design Manual are acceptable.

Section A-4 - Decks and Porches

47.400. Building Code Requirements. See Section 47.370.

1. The floors of porches and decks shall be constructed for a 40 P.S.F. live load plus the dead load of the materials.

2. Porches and decks exceeding 30" above finished grade shall have guardrails not less than 36" in height with balusters or intermediate rails, which will not allow passage of an object 4" or more in diameter.

3. Guardrails shall be designed and constructed for a concentrated load of 200 lbs. along the top railing member at any point. The in-fill area of the guardrail system shall be designed and constructed for a horizontal concentrated load of 200 lbs. applied on a 1 square foot area at any point. Load applied on the top rail and in-fill area are not required to be applied simultaneously.

4. Handrails located along side open stairways exceeding 30" above finish grade shall have guardrails installed to comply with 2 and 3 above measured vertically

above the nosing of the tread. The minimum height of railing is 34" and the maximum height is 36".

5. Handrails installed along side enclosed stairways exceeding 3 risers shall not be less than 30" nor more than 36" measured vertically above the nosing of the tread. One handrail is required.

6. The roof of porches shall be designed to accommodate 20 P.S.F. live load plus the weight of materials.

7. Footings supporting porches and decks shall be located below frost line which is 24" below grade.

8. Columns supporting roof construction should be a minimum 3" standard weight steel pipe, 6" x 6" treated wood, or 4" x 4" wood protected from decay and termites.

9. Columns supporting decks only may be 4" x 4" treated wood or decay and termite resistant wood.

10. Protection against decay and termites.

A. Heart wood of redwood and eastern red cedar is considered termite and decay resistant.

B. Approved treated C.C.A. wood is considered termite and decay resistant.

C. The bottom of wood structural floor joists located less than 18 inches to the earth shall be decay and termite resistant.

D. The bottoms of wood girders less than 12 inches to the earth shall be decay and termite resistant.

E. All wood sills resting on concrete and are less than 8 inches to the earth shall be decay and termite resistant.

F. The ends of wood girders entering exterior masonry shall have a clearance of 1/2 inch on top, sides and ends.

G. Wood siding, sheathing and framing on the exterior shall have clearance of not less than 6 inches to the earth.

Section A-5 - Fireplaces

47.500. Chimney Clearance.

1. Maintain 2 inch clearance from combustible roof rafters, joists, headers, studs, or beams where the chimney is constructed in the home.
2. Maintain 1 inch clearance from combustible roof rafters, joists, headers beams or studs where the chimney is constructed outside the home.

47.505. Cleanouts.

1. When provided, shall be accessible and be constructed of metal. Except for chimneys serving fireplaces, cleanouts shall be located 2 feet below the lowest inlet.
2. Cleanouts should not be locate din residential garages, less than 18 inches below the garage floor or other areas where ash removal will create a hazard to combustible material.

47.510. Factory -Built Fireplaces and Stoves. Shall be installed per the manufactures printed instructions, and shall be listed for the use by a nationally recognized testing laboratory.

47.515. Fireplace Clearance.

1. Wood or combustible framing shall not be placed within 2 inches of the outside face of the fireplace and not less than 6 inches from the inside surface of the flue liner.

2. Woodwork shall not be placed within 6 inches of a fireplace opening, and combustibles located within 12 inches of the opening shall not project more than 1/8 inch for each 1 inch distance from the fireplace opening.

47.520. Fire-stopping. Chimneys constructed in the home shall be fire-stopped between each story and at the ceiling line with approved fire stopping materials.

47.525. Flue Lining.

1. Flue liners shall extend from the top of the smoke chamber to a point above the chimney walls.

2. Flue liners shall extend from a point not less than 8 inches below the lowest outlet in the case of solid fuel burning stoves.

3. Motor joints shall be tight and left smooth on the inside of the chimney.

4. A 1/2 inch air space shall be maintained between flue lining and chimney walls.

5. Flues shall not be smaller than the connector from the solid fuel burning appliance.

6. Inlets to the flue shall enter from the side and have a thimble of fireclay or steel which will prevent the connector from pulling out of the inlet or extending beyond the wall of the liner.

47.530. Masonry Chimneys.

1. Shall be smoke-tight and capable of flue gas removal.

2. Footings shall be founded on solid, undisturbed natural grade, 12 inches thick and shall extend out 6 inches wider than the chimney or fireplace supported. The footing shall be located 24" below finish grade.

3. Corbeling of masonry units shall not exceed 1 inch projection for each course up to a maximum of 6 inches on either side of the foundation wall. Corbeling on the second story of a two-family dwelling shall not exceed the thickness of the chimney wall.

4. Changes in the size of the flue lining within 6 inches above or below where it passes through ceiling, floors, or roof area is not permitted.

5. Chimney shall not support other loads unless designed for such additional loads.

6. Chimneys shall extend 2 feet higher than any portion of the roof within 10 feet, and shall not be less than 3 feet higher than the roof.

7. Masonry walls shall be a minimum 4 inches thick and shall be lined with fireclay flue liners not less than 5/8 inch thick or other material approved to resist cracking at a temperature of 1800 degrees F. Masonry walls may be constructed without flue liners if a minimum of 8 inch solid masonry units.

47.535. Masonry Fireplaces.

1. The thickness of fireplace solid masonry walls is 10".

2. The fireplace walls may be constructed using a lining of 2 inch thick firebrick lining and 6 inch of solid masonry.

3. The fireplace may be constructed using a steel firebox liner of not less than 1/4 inch thickness, and an air chamber to provide a total thickness at the back and sides of not less than 8 inches of which 4 inches shall be solid masonry.

4. Masonry over the fireplace opening shall be constructed of steel of a size to accommodate the load and have a minimum bearing of 4 inches.

5. The hearth and hearth extension shall extend from a minimum of 36 inches from the back of the fireplace to the end of the hearth 16" in front of and 8" on each side of the fireplace opening. Where the fireplace opening exceeds 6 square feet, provide a hearth extension of 20 inches in front and 12 inches on each side.

Section A-6 - Floors

47.600. Floors.

1. Floors of wood construction shall be designed and constructed per the requirements of the N.F.P.A. "National Design Specification for wood construction, "HPMA (ANSI) LHF, the "Canadian Dimension Lumber Date Book" and the "Southern Pine maximum Spans for Joists and Rafters," and be capable of accommodating all loads imposed per the Building Code.

2. Load-bearing lumber shall be identified by a grade mark indicating information to determine Fb, and E values.

3. Allowable spans for wood girders supporting one floor based on using #2 S.Y.P.K.D. at 19% and using a roof truss system or where roof and ceiling loads are located on the exterior walls.

<u>Size of Girder</u>	<u>Floor live load</u>	<u>Floor dead load</u>	<u>Distance between exterior walls</u>	<u>Allowable spacing of columns</u>
6" x 10"	40 P.S.F.	10 P.S.F.	30'	10'
6" x 12"	40 P.S.F.	10 P.S.F.	30'	11'

4. Allowable span for wood girders supporting one floor based on using #2 S.Y.P.K.D. at 190% supporting floor joists, ceiling joists, and roof rafters.

<u>Size of Girder</u>	<u>Floor & roof Live load</u>	<u>Floor dead load</u>	<u>Distance between exterior walls</u>	<u>Allowable spacing of columns</u>
6" x 10"	70 P.S.F.	20 P.S.F.	30'	7' 0"
6" x 12"	70 P.S.F.	20 P.S.F.	30'	8' 0"

5. Required size of columns for girders supporting one floor.

<u>Steel</u>	<u>Wood</u>
3" standard weight pipe or B.O.C.A. approved adjustable column	6" x 6"

6. Required size of column footings to support girders based on girder support from 2 sides and allowable soil bearing capacity of 2500 P.S.F., column spacing 10 feet, 30 feet wide house, one floor only = 3' x 3' x 12".

7. Allowable distance between columns supporting steel girders which supports one floor only where a wood roof truss system or roof and ceiling loads are located entirely on the exterior walls. 30' wide house.

<u>Size of steel Girder</u>	<u>Distance between column supports</u>	<u>Live Load</u>	<u>Dead Load</u>
Grade A-36 W 4 x 8 x 13 lb.	13'	40 P.S.F.	10 P.S.F.

8. Allowable distance between columns supporting steel girders which support one floor plus roof and ceiling loads. 30' wide house.

<u>Size of steel Girder</u>	<u>Distance between column supports</u>	<u>Live Load</u>	<u>Dead Load</u>
Grade A-36 W 4 x 8 x 13 lb.	10'	70 P.S.F.	20 P.S.F.

9. Joists Bearing. The ends of each joist shall have not less than 1/2 inch of bearing on wood or steel and not less than 3 inches on masonry except where supported on a 1" x 4" ribbon strip or by using approved steel joist hangers.

10. Wood floor joists framing from opposite sides over a girder or wall shall be tied together by lapping a minimum of 3" or with a wood splice.

11. Wood floor joists framing into the side of a wood girder shall be supported by approved steel anchors or be set on ledger strips not less than 2" x 2".

12. Bridging. 2" x 12" wood floor joists or less where solid blocked at the ends with a band or rim joists are not required to have bridging. Homes which have 2 or more rows of girders shall have each row of floor joists solid blocked, or diagonal bridging (wood or metal) or a 1" x 3" bridging nailed to the bottom of the joists at intervals not exceeding 10 feet.

13. Steel. Structural steel, used in floor construction, including columns shall be designed and identified per AISC "Specifications for the Design, Fabrication and Erection of Structural steel for Buildings." The steel shall have a shop coat of paint when exposed in the building.

14. Cutting, notching, and boring floor joists. Notches in the top of joists shall not exceed $\frac{1}{6}$ the depth and shall not be located in the middle third of the span. The joists shall not be notched on the ends exceeding $\frac{1}{4}$ the joists depth. Holes bored in joists shall not be within 2 inches of the top and bottom of the joists and the hole diameter shall not exceed $\frac{1}{3}$ the depth of the joist. Floor trusses shall not be bored, cut, or notched without appropriate engineering.

15. Joists under baring partitions shall be doubled, and where necessary to accommodate, wall ceiling, roof, or floor loads a beam shall be installed sized to accommodate all live and dead loads.

16. Wood floor trusses shall be designed in accordance with approved engineering practice.

Section A-7 - Foundations

47.700. Backfill Damage. Foundation walls shall extend 6" above finish grade, except where brick veneer is used the extension is reduced to 4". The foundation plate should be sealed to prevent moisture from entering the dwelling when brick veneer exterior siding is used. Backfill adjacent to the wall shall not be placed until the floor is installed; or temporary support is provided.

47.705. Columns.

1. Protection. Columns supporting girders or beams shall be protected against decay or corrosion.

2. Column Structural Requirements. Anchor to prevent lateral displacement. Wood shall not be less than 6" x 6" and steel not less than 3" diameter standard pipe.

47.710. Concrete and Masonry. Concrete foundation walls and footings shall be constructed per Building Code Requirements for reinforced concrete footings and foundation per the American Concrete Institute, A.C.I. 318.1.

1. Mixing and placing concrete: all debris and ice shall be removed from spaces to be occupied by concrete.

2. Ready-mixed concrete shall be mixed and delivered in accordance with ASTM C94 or ASTM C685.

3. Reinforcement shall be thoroughly clean of ice or other deleterious coating.

4. Concrete shall be deposited as nearly as practicable in its final position to avoid segregation caused by rehandling or flowing.

5. Concrete placement shall be carried on at such a rate that the concrete is plastic and flows readily into the forms.

6. Once started, concrete shall be continuous to avoid cold joints. All concrete shall be thoroughly consolidated around reinforcement during placement.

7. Cold weather requirements: adequate equipment shall be provided for protection of concrete during freezing or near-freezing weather.

8. Cold weather concreting defined: a period when for 3 or more successive days the air temperature drops below 40 degrees F. When temperatures above 50 degrees F. occur during more than 1/2 of any 24-hour period, the concrete should no longer be regarded as winter concrete for that day. A.C.I. 306R-2.

9. Minimum recommended concrete temperatures for concrete placed with an air temperature of 0 to 30 degrees is 65 degrees F. and should be protected and maintained at 55 degrees F. to avoid damage from freezing for a period of 3 days when using type 1 or 2 cement, and 2 days for type III accelerator, or 100 lb./yd. Extra cement. Where concrete will be partially or fully loaded additional days are required. A.C.I. 306 R-3.

10. Hot weather concreting defined: 75 to 100 degrees F., any combination of high air temperature, low relative humidity, and wind velocity tending to impair the quality of concrete. To avoid shrinkage cracks, in hardened concrete during hot weather, it is essential that precautions be taken to reduce the rate of surface moisture evaporation. Water curing is the preferred method; but, the use of curing compounds are effective for vast areas of flatwork.

47.715. Crawl Space.

1. Ventilation. Provide minimum cross ventilation of 1 sq. ft. for each 150 sq. ft. of crawl space area. One such opening shall be within 3' of each corner except the front. The openings shall be covered with 1/4" corrosion-resistant wire and should be closable for winter conditions. The total area of ventilation openings may be reduced to 1 sq. ft. for each 300 sq. ft. of crawl space area where the ground is covered with a vapor barrier.

2. Crawl Space Access. Install an access door minimum 18" x 24" to the under-floor space.

3. Crawl Space Insulation. Crawl space insulation shall be provided. Insulate exterior walls or under floor joists with R-13 insulation.

47.720. Drainage. The finish grade adjacent to the foundation wall shall slope a minimum of 1/2 inch per foot within the first 6 feet and then graded to conform with the storm water review plan obtained as part of the building permit.

47.725. Expansive. Expansive, compressible or shifting soil: when subsoils are found which are expansive, the soils shall be removed to a depth and width sufficient to assure stable moisture content.

47.730. Floor Slabs.

1. The minimum specified compressive strength of concrete for floor slabs is 2500 P.S.I. except where weather exposure requires greater strength and air entrainment concrete.

2. Slabs shall be constructed with contraction joints having a depth of at least 1/4 the slab thickness and spaced at intervals not more than 30 feet in each direction and any offset exceeding 10 foot. Control joints are not required in structural slabs containing reinforcement rods or welded wire fabric.

3. The area between foundation walls and footings shall have all vegetative top soil and foreign material removed.

4. Fill under floor slabs shall not exceed 24" for clean sand or gravel. Structural slabs should be placed over fill areas exceeding 24" in depth.

5. 4" of clean graded crushed stone passing a 2" sieve and retained on a 1/4 inch sieve shall be placed on the subgrade when the floor slab is below grade. 1" clean rock is recommended.

6. The minimum thickness of interior concrete floors is 4" nominal with a tolerance of 1/4 inch per 10 ft. length. ACI 117-3.2.1. The tolerance for a finished concrete floor surface between high spots shall not be greater than 5/16 inch below a 10 ft. long straight edge. ACI 117-4.2.2 Class Bx. Floor drain depressions are not included.

7. Finish interior concrete floors surfaces for light foot traffic, and include pneumatic wheel traffic for attached garage floors. Medium steel trowel finish per ACI 302.1R20 Chapter 7.

8. Concrete cover over concrete floor reinforcement should be not less than 2 inches.

9. Concrete shall not be placed on frozen subgrade and shall be protected as required during cold weather or hot weather concreting.

47.735. Footings. Minimum width and thickness of footings.

1 story slab on grade - 12" wide, 8" thick;

2 story (basement and 1 floor) - 16" wide, 8" thick

3 story (basement and 2 floors) - 24" wide x 10" thick

4 story (basement and 3 floors) - 36" x 12" thick

1. Minimum soil bearing value shall be not less than 2000 lbs. per square foot.
2. Footings shall be sized to accommodate all superimposed live and dead loads without exceeding the soil bearing value.
3. 1/2" reinforcement dowels shall be placed in all footings and retaining walls where foundation walls are placed.
4. The top and bottom of the footing shall be level. Any elevation change of the footing shall be made with a step-up footing and shall be continuous.
5. The footing shall be placed on solid undisturbed natural grade of equal bearing value.
6. The bottom of the footing shall be placed 24" below finished grade for all homes, including all attached structures such as porches, retaining walls, and roof structures.
7. Footings shall be formed to ensure the required edge thickness of the concrete. Earth cuts may be used to form for frost footing.
8. The footing concrete forms shall extend up a minimum of 4" to allow placement of 4" of 1/4" to 2" clean rock for floor slab drainage. A sleeve or drain shall be installed under or through the footing to drain any accumulation of water.
9. The minimum compressive strength of footing concrete shall be 2500 lbs., 5 bag mix.
10. Tolerance for footing placement to receive foundation walls per A.C.I. standard 117-81 section 2.0.
 - A. Alignment in 10 ft = 1/4 inch, maximum for 50' length 1/4 inch.
 - B. Level in 10' = 1/4 inch, maximum for 50' length = 1/2 inch.
11. Pier systems for footings and foundations may be designed by the Building Contractor with approval of the Building Inspector prior to pier placement.
12. Building sewer sleeves shall be located 24" below finish.
13. Water service sleeves shall be located 36" below finish.

47.740. Footing Reinforcement. Two #4 reinforcement bars in footings. Place bars for 3" of concrete cover where concrete is in contact with the earth or rock.

47.745. Foundation.

1. Foundation Anchorage. Wall sill plates, minimum of 2-inch by 4-inch member, shall be anchored to foundation walls with 1/2-inch anchor bolts embedded 8 inches into poured-in-place concrete, 15-inch into grouted unit masonry. Place anchor bolt within 12-inch of the corner and each 6 feet apart.

2. Foundation Drainage. Drains shall be installed around all concrete foundation walls inclosing spaces below grade. The 4" perforated pipe shall be placed on 2" of crushed stone and covered with 6" of the same material. The drain pipe shall discharge by gravity or mechanical means to daylight. Means shall be provided to prevent the pipe openings from becoming clogged.

3. Foundation Reinforcement. Minimum rates of horizontal reinforcement area to gross concrete area is 0.0020: 4 #4 bars for an 8" wide x 8' high concrete foundation wall. Place two #4 reinforcements bars over window and door openings.

4. Foundation Requirements. Foundations and their structural elements shall be capable of supporting all superimposed live, and dead loads, including lateral loads.

5. Foundation Waterproofing. Foundation walls enclosing basements which are habitable or may become habitable located below grade shall be water-proofed using materials or methods approved for the purpose.

6. Foundation Tolerance. Tolerance for foundation wall alignment per A.C.I. standard A.C.I. 117-81 Section 5.2.1. Wall Alignment:

- A. Plumb
In any 10' = 1/4"
Maximum per floor = 1/2"
- B. Horizontal
In any 10' = 1/4"
Maximum for entire length = 1/2"

7. Foundation Walls - Minimum Thickness. The maximum depth of unbalanced fill may be increased with appropriate addition of reinforcement bars or supporting walls for lateral forces.

<u>Material</u>	<u>Thickness</u>	<u>Max. Depth of Unbal. Fill</u>
Concrete	6"	4'
Concrete	8"	8'
Concrete	10"	10'
Concrete	12"	12'

47.750. Materials. Concrete: Exposed concrete subject to weathering shall have the following minimum strength and contain air entrainment of 5% to 7%.

<u>Type of Construction</u>	<u>Minimum compressive strength</u>
Basement walls	3,000
Basement slabs & footings	2,500
Porches, walks, steps, garage slabs, Carport slabs	3,500

47.755. Protection against decay and termites. Decay and termite resistant woods are heartwood or redwood and eastern red cedar. Pressure preservatively treated wood per a.W.P.A. is also termite and decay resistant. The following locations are required to use termite and decay resistant wood:

1. Wood floor joists closer than 18" to expose ground.
2. Wood girders or beams closer than 12" from exposed ground.
3. All sills on exterior foundation walls less than 8" from exposed ground.
4. Sills and sleepers on a concrete slab which is in direct contact with the ground.
5. Wood siding, sheathing and wall framing on the exterior shall have a clearance of less than 6" from the ground.
6. Wood structural members in contact with the ground or resting on concrete less than 8" from the ground.

47.760. Quality of Pressure Treated Wood. Shall bear the quality mark of an approved inspection agency.

47.765. Reinforcement Rods. Reinforcement rods minimum concrete cover per A.C.I. 318-25 Section 7.7.I. Case in Place:

1. Concrete cast against and permanently exposed to earth - 3"
2. Concrete exposed to earth or weather - #5 bars or smaller - 1 1/2"
3. Concrete not exposed to weather or in contact with ground: slabs, walls, joists - 3/4".

Section A-8 - Roofing

47.800. Roof Coverings.

1. Roof coverings shall be manufactured per A.S.T.M. specifications and installed in accordance with the manufacturers printed instructions and the building code.
2. The roof coverings shall accommodate the wind speed of 18 P.S.F. acting horizontal to the roof and provide a weather resistant barrier.
3. Asphalt and Fiberglass Shingles.
 - A. Asphalt shingles shall be applied only to roofs with solid sheathing.
 - B. Fifteen pound felt underlayment is required laid parallel to the eave with a 2 inch top lap and 4 side lap fastened with 12 gauge roofing nail or 16 gauge 15/16 O.D. crown staple drive through tin discs, spaced maximum 12 inch on center, with minimum O.D. leg of 1 inch.
 - C. The asphalt shingles shall be fastened with 4 nails or staples per each 36" - 40" section of shingle. Nails to be 12 gauge 3/8" HD roofing nail 1 1/4" long or 16 gauge 15/16 O.D. crown, 1 1/4 inch long.
 - D. Hip and ridge shingles or vents shall be installed per manufacture's printed instructions.
 - E. Valley flashing, wall flashing, other flashings, and hip and ridge shingles shall be installed per manufacture's printed instructions.
4. Asphalt shingles may be installed on roof slopes less than 4 inches in 12 inches but not less than 2 inches in 12 inches provided the following additional work is completed:
 - A. Shingles are self-sealing and are installed over an underlayment of two layers of 15 lb. Felt. The underlayment is to be installed shingle fashion parallel to the eaves with a 19" top lap and a 12" end lap. End laps shall be located a minimum 6 feet from the preceding course.
 - B. The two layers of underlayment shall be cemented together from the eave up the roof to overlie a point 24 inches inside the interior wall line.

5. Wood Shakes.

A. May be applied to roofs with solid or spaced sheathing. The spacing of wood sheathing shall not exceed 4" and shall be applied over an underlayment of not less than 30 lb. Felt, 18 inch-wide strips. The minimum size of the wood sheathing is 1" x 3" nominal dimension.

B. Shakes may be laid in straight or staggered courses with a side lap of not less than 1 1/2" between joints. Spacing between shakes shall not exceed 1/2". The starter course shall be doubled.

C. Shakes shall not be installed on roofs of less than 4/12 pitch unless an underlayment of 30 lb. Felt is installed which is laid parallel to the eaves with a 2 inch top lap and a 4 inch under lap. A second layer is required along the eaves up the roof to overlie a point 24" inside the interior wall line of the building.

D. Valleys. Flashing for wood shake shingles shall be minimum 28 gauge galvanized corrosion-resistant sheet metal and shall extend 11" from the center each way. Lap sections 4".

E. Weather exposures. Shall not exceed RCSHSB "Grading and Packing Rules for Centi-Split Red Cedar Shakes."

F. Attachment. Wood shakes shall be attached with 2 corrosion resistant nails or staples per shake using .0915 shingle nails, 0915 to 099 T-nails, or 16 gauge 7/16" O.D. crown staples.

G. Other roof coverings are permitted which are listed in the Building Code.

47.810. Roof Ceiling Construction - Wood.

1. The roof and ceilings of wood construction shall be designed and constructed to accommodate the live load plus the dead load of material in accordance with the N.F.P.A. "National Design Specifications for Wood Construction." The "Canadian Dimension Lumber Date Book," or the "Southern Pine Maximum Spans for Joists and Rafters," and shall transmit the loads to the supporting structural elements. The roof live load is 20 P.S.F. and the ceiling live load is 10 P.S.F.

2. Roof drainage. All dwellings shall have a controlled method of discharging roof drainage to the ground surface at least 5 feet from the foundation in accordance with the storm water review plan.

3. Load-bearing dimension lumber for rafters, trusses and ceiling joists shall be identified by a grade mark to determine Fb, and E values.

4. Ridge boards, valley and hip rafters shall be not less in depth than the cut end of the rafter.
5. Hip and valley rafters shall be supported at the ridge with a brace to a bearing partition.
6. Rafters shall be nailed to ceiling joists to form a tie between exterior walls where joists are parallel to the rafters. Where not parallel, rafters shall be tied together with a rafter tie each 4 ft. o.c.
7. Unbraced valleys and hips shall be designed as beams.
8. Unbraced ridge boards, in roof slopes of 3 to 12 or less shall be designed as beams.
9. The ends of each rafter or ceiling joists shall have not less than 1/2 inches of bearing on wood or metal and not less than 3 inches on masonry.
10. Cutting and notching: the ends may be notched not to exceed 1/4 of the depth. Notches in the top or bottom shall not exceed 1/6 the depth and shall not be located in the middle 1/3 of the span.
11. Holes. Bored holes in rafter and ceiling joists may not exceed 1/3 the depth of the member and shall not be located within 2" of the top or bottom cord.
12. Roof-ceiling framing over openings shall be provided with headers to support the superimposed live and dead loads.
13. Trusses. Wood trusses shall be designed and installed with approved engineering. Truss components may be joined by nails, glue, timber connectors or other approved fastening devices.
14. Plywood. Plywood roof sheathing shall be identified by grade mark, and may be interior type bonded with exterior glue when not exposed to the weather.
15. Particle board roof sheathing shall be identified by grade mark and conform to type 2-M-W or 2-M-F.
16. 1/2 inch plywood or particle board roof sheathing may be applied parallel or perpendicular to the span of rafters or joists and shall be continuous over 2 or more spans. A 1/2 inch gap must be provided between panel and concrete or masonry. Leave a 1/16 inch gap between panels and nail no closer than 3/8 inch from panel edge. Clips are required between particle board panels. Nail 1/2 inch roof sheathing down to joists or trusses with 6 d. common nails 6" o.c. direct edges and 12" O.C. intermediate supports. Nail 5/8" roof sheathing with 8d. common nails 6" o.c. direct edges and 12" o.c. intermediate. 16 gauge galvanized wire staples, 3/8" minimum crown; length of 1" plus plywood thickness.

17. Allowable span for high slope roof rafters

20 p.S.F. Live Load & 7 P.S.F. Dead Load
Slope over 3 in 12, Light roof covering, no finish ceiling
L/180 Snow Loading

<u>Rafters</u>	<u>S.P.F.</u>	<u>S.Y.P.</u>	<u>Douglas Fir (Larch)</u>
	#2	#2	#2
	<u>N.L.G.A.</u>	<u>S.P.I.B.</u>	
2 x 6 16"	14'-6"	15'-0"	14'-6"
2 x 6 24"	11'-10"	12'-3"	11'-10"

47.820. Roof Ceiling Construction - Metal.

1. Steel structural elements in roof-ceiling construction may be hot-rolled structural steel shapes or cold formed to shape from steel strip or plate. The steel shall be designed and identified per AISC "Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings.

2. Aluminum elements. Roof-ceiling systems shall be designed and installed per Alderman Autrey SAS 30.

47.825. Roof Ceiling Construction.

Ceilings (No Attic Storage, Drywall)
Allowable Span for Ceiling Joists
L/240 Normal Duration

10 P.S.F. Live Load plus 5 P.S.F. Dead Load

<u>Joists</u>	<u>S.P.F.</u>	<u>S.Y.P.</u>	<u>Douglas Fir (Larch)</u>
<u>Size & Spacing</u>	#2	#2	#2
	<u>N.L.G.A.</u>	<u>S.P.I.B.</u>	
2 x 6 16"	6'-11"	17'-8"	17'-8"
2 x 6 24"	14'-9"	15'-6"	14'-9"

Garage Ceilings (Attic Storage, Drywall)

20 P.S.F. Live Load plus 10 P.S.F. Dead Load
L/240 Normal Duration

<u>Joists</u>	<u>S.P.F.</u>	<u>S.Y.P.</u>	<u>Douglas Fir (Larch)</u>
<u>Size & Spacing</u>	#2	#2	#2

		<u>N.L.G.A.</u>	<u>S.P.I.B.</u>	
2 x 6	16"	6'-11"	17'-8"	17'-8"
2 x 6	24"	14'-9"	15'-6"	14'-9"
2 x 8	16"	15'-10"	17'-3"	15'-10"
2 x 8	24"	12'-10"	13'-10"	12'-10"
2 x 10	16"	19'-6"	20'-2"	19'-6"
2 x 10	24"	15'-8"	16'-5"	15'-8"

High Slope Great Room Vaulted Ceilings (Drywall)

20 P.S.F. Live Load plus 15 P.S.F. Dead Load
R-30 Insulation Required, Air space between roof sheathing
And top of insulation 1/300 of the space.
L/240 Snow Loading

<u>Joists</u>	<u>S.P.F.</u>	<u>S.Y.P.</u>	<u>Douglas Fir (Larch)</u>
<u>Size & Spacing</u>	<u>#2</u>	<u>#2</u>	<u>#2</u>
	<u>N.L.G.A.</u>	<u>S.P.I.B.</u>	
2 x 10	16"	19'-2"	19'-2"
2 x 10	24"	15'-8"	15'-8"
2 x 12	16"	23'-3"	23'-3"
2 x 12	24"	19'-0"	19'-0"

Attic Ventilation

Provide attic and enclosed rafter spaces formed where ceilings are applied directly to the underside of roof rafters with ventilating openings of 1/150 of the space. Where eave vents are provided to supplement upper vents, 1/300 of the space is permitted.

Attic Access

A minimum opening of 22" x 30" is required.

Attic Insulation

\$-30 insulation is required in the attic or enclosed rafter spaces.

47.830. Re-roofing. This section is to provide roofing contractors, doing re-roofing within Holts Summit, the minimum requirements of the Building Code, 1996 B.O.C.A. National Building code, Section 1512.0 requires the following minimum provisions for the replacement of roof coverings on existing homes and buildings. A building permit is not required for roof covering replacement, but the Building Code will be enforced upon receiving complaints.

1. General. Materials and methods of application used for recovering or replacing an existing roof covering shall comply with the requirements of Section 1505.0 or 1507.0. The repair of existing roofs and roof coverings shall comply with the provisions of Chapter 47, but more than 25 percent of the roof covering of any building shall not be removed and replaced within any 12-month period unless the entire roof covering is made to conform to the requirements for new roofing.

2. Structural and Construction Loads. The structural roof components shall be capable of supporting the roof covering system and the materials and equipment loads that will be encountered during installation of the roof covering system.

3. Recovering vs. Replacement. New roof coverings shall not be installed without first removing existing roof coverings when any of the following conditions occur:

A. When the existing roof or roof covering is water soaked or has deteriorated to the point that the existing roof or roof covering is not acceptable as a base for additional roofing.

B. When the existing roof covering is wood shake, slate, clay, cement or asbestos-cement tile.

C. When the existing roof has two or more applications of any type of roof covering. Exception: Complete and separate roofing systems, such as standing-seam metal roof systems, which are designed to transmit all roof loads directly to the building's structural system and which do not rely on existing roofs and roof coverings for support, shall not require the removal of existing roof coverings.

4. Reuse of Materials. Existing slate, clay or cement tile shall be permitted for reuse, except that damaged, cracked or broken slate or tile shall not be reused. Existing vent flashings, metal edgings, drain outlets, collars and metal counter flashings shall not be reused where rusted, damaged or deteriorated. Aggregate surfacing materials shall not be reused.

5. Flashing. Flashing shall be reconstructed in accordance with approved manufacturer's installation instructions. Metal flashing to which bituminous materials are to be adhered shall be primed prior to installation.

Section A-9 - Swimming Pools

47.900. Swimming Pools. A family swimming pool is a body of water and auxiliary structures located at a private residence intended only for the use by the owner and invited guests for swimming and bathing. These swimming pool requirements shall not be

applicable to any yard ornament or pool of water less than 24 inches deep and containing less than 250 square feet of surface area.

1. Plans and Permits.

A. A swimming pool shall not be constructed, enlarged or altered until a building permit is obtained and the required building permit fee based on costs of construction is assessed.

B. A site plan is required showing the location of the swimming pool in the yard. The pool is classified as an accessory structure by the zoning ordinance and shall comply with the setback regulations.

2. Swimming Pool Side Yard Setbacks.

A. The minimum side yard set back is 10 feet.

B. If 40% or more of a frontage is occupied by two or more buildings the minimum side yard for swimming pools is as follows:

(1) The minimum side yard setback is an average of the existing side yards. Existing side yards with a setback exceeding 10 feet shall be deemed to be 10 feet and vacant lots shall not be averaged.

(2) If the computed average is less than 10 feet and the applicant's existing home setback is less than 10 feet the pool may be installed provided that the front and rear yard requirements are observed and the width of the existing side yards of the applicants building are not diminished.

3. Swimming Pool Rear Yard Setbacks.

A. A swimming pool may not occupy more than 30% of the rear yard.

B. A swimming pool closer than 10 feet to a main building shall have the same side and rear yards as the main building.

C. A swimming pool located more than 10 feet from the home may be located within 2 feet of the rear yard provided the pool is located at least 60' from the front property line.

4. A temporary construction fence is required during construction when the possibility exists that 2 feet of water will pond in the excavation.

5. Every permanently constructed swimming pool within Holts Summit shall be completely surrounded by a fence or wall not less than 4 feet in height, having

no openings or holes larger than 6 inches in any dimensions. All doors shall be fastened and locked at any and all times the pool is not in use or unattended. Raised platforms around elevated swimming pools shall have guardrails to comply with minimum opening limitations and heights for guardrails.

6. Structural Design. Manufactured swimming pools shall be engineered and designed to withstand the expected forces to which the pool will be subjected.

A. Wall slopes. To a depth up to 2 feet 9 inches from the top, the wall slope shall not be more than 1 unit horizontal in 5 units vertical (1:5).

B. Floor slopes. The slope of the floor on the shallow side of the transition point shall not exceed 1 unit vertical to seven units horizontal (1:7).

C. All pools shall have recirculating skimming devices or overflow gutters. Where skimmers are used provide one for each 1000 square foot of surface area. Overflow gutters shall not be less than 3 inches deep and pitch to slope 1 unit vertical in 48 units horizontal (1:48) toward drain.

7. Steps and Ladders. Provide one means of egress from the swimming pool. Treads of steps and ladders shall be slip resistant with handrails on each side.

8. The pool shall be provided with a potable water supply.

9. Water Treatment. The swimming pool shall be designed and installed so the pool water will turnover at least once every 18 hours. Filters shall not filter at a rate in excess of 5 gallons per minute per square foot of pool surface area.

10. Diving Boards. See Building Code chart for minimum water depths and distances based on board height.

Section A-8 - Wall Construction

47.900. Wall Construction.

1. Combustible wood frame walls. All combustible wood frame walls shall be firestopped at the bottom and at the top. The top plate and bottom plate qualify as effective firestopping.

2. Compressible Floor Covering. Compressible floor-covering which compresses more than 1/32 inch when subjected to 50 lbs. applied at 1" square of the material shall not be placed under the walls.

3. Drilling and notching - studs. Any stud may be cut not to exceed 1/4 of its width. Any stud may be bored or drilled but the resulting hole shall not exceed 40% of the stud width, and the edge of the hole is no greater than 5/8" to the edge of the stud. Wood studs may be bored to a diameter not to exceed 60% of the width of the stud provided each stud is doubled.

MAXIMUM STUD SPACING (INCHES)
MAXIMUM STUD LENGTH 10'

<u>Stud Size</u>	<u>Supporting Roof & Ceiling</u>	<u>Supporting One Floor, Roof & Ceiling</u>	<u>Supporting 2 Floors, Roof & Ceiling</u>	<u>Supporting One Floor Only</u>
2 x 4	24"	16"	-	24"
2 x 6	24"	24"	16"	24"

4. Drilling and notching - top plate. May be cut or bored up to 50% of the stud width. When cut or bored exceeding 50% of the stud width, install a 24 gauge steel angle or equivalent support spanning the distance between the studs.

5. Headers. Wood headers located in interior or exterior walls shall be designed to accommodate all superimposed live and dead loads.

6. Joists and Trusses. Floor joists, floor trusses or roof trusses spaced more than 16" intervals shall be located within 5" of the supporting wood studs.

7. Masonry walls. Masonry walls shall be constructed per the requirements of Section 604 of the Building Code.

8. Metal. Structural elements in walls constructed using steel shall be designed and installed per the requirements contained in AISC specifications.

9. Non-structural Sheathing. Non-structural sheathing (foam insulation sheathing) shall be nailed with 12 gauge roofing nails or 16 gauge staples spaced 12" apart at the edges and at 12" on intermediate supports.

10. Particle board. Particle board shall be identified by a grade mark and shall conform with the requirements of A.N.S.I. A208.1. 1/2" particle board sheathing shall be fastened with 6d nails or 16 gauge staples spaced 6" apart at the edges and at 12" on intermediate supports.

11. Plywood. Plywood shall be identified by a grade mark and shall conform with the requirements of DOC PSI and the American Plywood Association. 1/2" plywood sheathing shall be fastened with 6d nails or 16 gauge staples spaced 6" apart at the edges and at 12" on intermediate supports.

12. Sliding Glass Doors. Sliding glass doors shall be tested and certified. Regardless of the door used, no door shall exceed of air infiltration 0.50 C.F.M. per square foot of door area when tested per ASTM E283.

13. Top Plate. A double top plate and a single bottom plate is required for all exterior walls and interior load bearing walls.

14. Wall Bracing. Exterior walls of wood frame construction shall be effectively braced with approved let-in bracing or the use of plywood or particle board. When nonstructural sheathing is used all exterior walls shall be braced at each corner and at each 25' of wall length.

15. Wall Insulation. Provide R-13 insulation in all exterior walls enclosing habitable or occupiable spaces.

16. Windows. Windows shall be tested and certified. Regardless of the window used, no window shall exceed 0.50 C.F.M. of air infiltration per linear foot of crack when tested per ASTM E283.

17. Wood Identification. Dimension lumber used in walls shall be stamped with the grade mark, or provide a certificate of inspection.

47.910. Wall Covering Interior.

1. Wood vertical support for lath or gypsum wallboard shall not be less than 2" nominal in the least dimension. Wood furring strips may be 1" by 2" over solid blocking.

2. Where wood framed walls are covered with portland cement plaster or tile and subject to water splash the framing shall be protected with a moisture barrier. Vapor barriers shall not be used behind water-resistant gypsum backing board.

3. Gypsum may be applied at right angles or parallel to framing members.

4. Plastering with portland cement or gypsum plaster shall conform to ASTM standards.

5. Shower and bath spaces. Floors and walls shall be finished with a smooth, hard and nonabsorbent surface to a height of not less than 6' above the floor. Gypsum where utilized shall be of a type manufactured for the use and the edges sealed as recommended.

6. Other finishes. Wood veneer or hardboard paneling not less than 1/4 inch shall conform to (ANSI) HP and may be installed directly to wood studs spaced on 16 inch centers. Wood veneer or hardboard paneling less than 1/4 inch shall be attached to gypsum backer board not less than 3/8 inch in thickness.

7. Application and minimum thickness of gypsum wallboard.

<u>Thickness Of Gypsum</u>	<u>Plane of Framing</u>	<u>Long Dimension of Gypsum To Framing</u>	<u>Maximum Spacing of Studs or Joists</u>	<u>Maximum Spacing of Fasteners Nails</u>	<u>Screws</u>
1/2"	Horizontal	Either Direction	16"	7"	12"
1/2"	Horizontal	Perpendicular	24"	7"	12"
1/2"	Horizontal	Either Direction	24"	8"	12"
5/8"	Horizontal	Either Direction	16"	7"	12"
5/8"	Horizontal	Perpendicular	24"	7"	12"
5/8"	Vertical	Either direction	24"	8"	12"

Fasteners for 1/2" gypsum shall be #13 gauge, 1 3/8" long, 19/64" head; or .098" diameter, 1 1/4" long, annular-ringed; 5d cooler nail.

Fasteners for 5/8" gypsum shall be #13 gauge, 1 5/8" long, 19/64" head; or .098" diameter, 1 3/8" long, annular-ringed; 6d cooler nail.

47.930. Wall Covering Exterior.

1. Masonry Veneer. Brick veneer shall be installed per Building Code requirements for seismic zone #1 and the height is limited to 35".

A. Brick veneer shall be attached to supporting framing members with corrugated corrosion - resistant metal ties not less than #22 U.S. gauge x 1 inch. Each tie shall be spaced not more than 24" on center horizontally and shall not support more than 3 1/4 square feet of wall area.

B. A 1" air space is required between the exterior wall sheathing and the brick veneer.

C. Building paper or approved water-resistant sheathing is required between brick veneer and exterior wall studs.

D. Weep holes shall be spaced not to exceed 4 ft. o.c. along the base course of brick veneer. Flashings or a coat of bitumeous mastic applied along the foundation wall plate is suggested to prevent moisture from entering the home.

E. A minimum 3/4" clearance shall be provided between brick veneer and the roof soffit.

F. Lintels. Brick veneer shall not support vertical loads other than the dead loads of veneer above. Steel lintels shall have a shop coat of paint as required for all secondary structural steel components and shall have a minimum length of bearing of 4".

Allowable spans for steel lintels supporting masonry veneer:

<u>Size of Angle</u>	<u>One Story</u>	<u>Two Story</u>
3" x 3" x 1/4"	3' 6"	3' 0"
4" x 3" x 1/4"	5' 10"	3' 0"
6" x 3 1/2" x 1/4"	8' 0"	3' 6"

G. Mortar Joints. Full mortar joints are essential to good water resistant brickwork. All brick should be laid with full head and bed joints. Tooling of the joint compacts the mortar, producing a dense surface and increasing the bond to the brick.

H. Mortar. The American Brick Institute recommends that portland cement lime and sand mortar be used for all brick masonry. The mortar type N. should be used for parapet walls, chimneys, and exterior walls above grade subject to severe exposure. Type m. high compressive strength mortar should be used for brick masonry below grade and in contact with the earth such as foundations, retaining walls and walls.

47.940. Vinyl Exterior Siding.

A. The minimum thickness of exterior vinyl sidings is 0.035 inch and shall comply with ASTM D. 3679: specifications of Rigid Poly Vinyl Chloride (P.V.C.) siding.

B. Vinyl siding shall be installed in accordance with the manufacturer's printed instructions, and shall be fastened with corrosion resistant nails, 1/8" diameter with 5/16" heads long enough to penetrate not less than 1" into framing. Horizontal siding panels shall be nailed a maximum of 16" o.c.

C. The vinyl exterior siding package should include a statement of compliance with requirements established in ASTM specification D. 3679.

D. Non-structural sheathing may be used under exterior vinyl siding where permitted by the manufacturer's specifications.

E. Vinyl exterior siding shall over-lap the foundation a minimum 1".

47.950. Other Exterior Siding. Other Building Code approved exterior siding materials may be used where installed in accordance with the product listing and manufactures printed instructions.

Section A-9 - Windows

47.1000. Bathrooms. Bathrooms, water closet compartments and other similar rooms shall be provided with aggregate glazing area in windows of not less than 3 square feet, one-half of which must be operable. Exceptions: The glazed areas shall not be required where artificial light and an approved mechanical ventilation system capable of producing a change of air every 12 minutes are provided. Bathroom exhausts shall be vented directly to the outside.

47.1005. Emergency Egress Openings.

1. Every sleeping room shall have at least one operable window or exterior door approved for emergency egress or rescue. The units must be operable from the inside to a full clear opening without the use of separate tools. Where windows are provided as a means of egress or rescue they shall have a sill height of not more than 44 inches above the floor.

2. All egress of rescue windows from sleeping rooms must have a minimum net clear opening of 5.7 square feet. The minimum net clear opening height dimension shall be 24 inches. The minimum net clear opening width dimension shall be 20 inches.

3. Exception: Grade floor window may have a minimum net clear opening of 5 square feet.

47.1010. Habitable Rooms. All habitable rooms shall be provided with aggregate glazing area of not less than 8 percent of the floor area of such rooms. One-half of the required area of glazing shall be operable.

1. Exceptions:

A. The glazed areas need not be operable where an approved mechanical ventilation system is provided capable of producing a change of air every 30 minutes and the opening is not required by **Section 310.**

B. The glazed areas may be omitted in rooms where an approved mechanical ventilation system is provided capable of producing a change of air every 30 minutes, artificial light is provided capable of producing an average illumination of 6 foot candles over the area of the room at a height of 30 inches above the floor level, and the opening is not required by Section **310.**

47.1015. Hazardous Locations, Glazing. The following shall be considered specific hazardous locations for the purpose of glazing:

- and jalousies.
1. Glazing in ingress doors except wired glass in required fire doors
 2. Glazing in fixed and sliding panels of sliding-type doors (patio and mall type).
 3. Glazing in storm doors.
 4. Glazing in all unframed swinging doors.
 5. Glazing in shower and bathtub doors and enclosures.
 6. Glazing, operable or inoperable adjacent to a door in all buildings and within the same wall plane as the door whose nearest vertical edge is within 12 inches of the door in a closed position and whose bottom edge is less than 60 inches above the floor or walking surface.
 7. Glazing in fixed panels having a glazed area in excess of 9 square feet with lowest edge less than 18 inches above the finished floor level or walking surface within 36 inches of such glazing. In lieu of safety glazing such glazed panels may be protected with a horizontal member not less than 1 1/2 inches in width when located between 24 and 36 inches above the walking surfaces.

47.1020. Human Impact Loads. Individual glazed areas in hazardous locations such as those indicated in Section **308.3** shall pass the test requirements of CPSC 16-CFR, Part 1201, or by comparative test shall be proven to produce at least equivalent performances.

1. Exceptions:
 - A. Polished wire glass for use in fire doors, fire windows and view panels in 1-hour fire-resistive walls shall comply with ANSI Z97.1.
 - B. The unbacked specimens of plastic materials shall be exposed in Arizona and Florida to 45 degrees facing south for three years. Approved plastic materials shall be acceptable if the impact strength is not reduced by more than 25 percent during exposure when tested in accordance with Section 12.01.4 (c) (2) (ii) of the CPSC standard, referenced in this section. Some discoloration is permissible, but defects other than this discoloration shall not be permissible. No bubbles or other noticeable decomposition shall be permissible in the irradiated portion.

47.1025. Labeling.

1. Each light shall bear the manufacturer's label designating the type and thickness of glass. Labels may be omitted from other than safety glazing materials unless specifically required by the building official.

2. To qualify as glass with special performance characteristics, each unit of laminated, heat-strengthened, tempered glass shall be permanently identified by the manufacturer. The identification of tempered glass shall be etched or ceramic fired on the glass and be visible when the unit is glazed. Heat-strengthened and tempered spandrel glasses are exempted from permanent labeling. This type of glass shall be labeled with a removable paper label by the manufacturer.

47.1030. Louvered Windows or Jalousies.

1. Regular plate, sheet or patterned glass in jalousies and louvered windows shall be no thinner than nominal 7/32 inch and no longer than 48 inches. When other glass types are used, design shall be submitted to the building official for approval. Exposed glass edges shall be smooth.

2. Wired glass with wire exposed on longitudinal edges shall not be used in jalousies or louvered windows.

47.1035. Permitted Materials. The following types of glazing may be used:

1. Laminated glass with a minimum 0.030-inch polyvinyl butyral interlayer.

2. Fully-tempered glass.

3. Heat-strengthened glass.

4. Wired glass

5. Approved rigid plastics.

47.1040. Screens.

1. General. For fully-tempered or heat-strengthened glass, a retaining screen meeting the requirements of Section 308.6.6 shall be installed below the glass, except for fully-tempered glass that meets either condition listed in Section 308.6.5.

2. Screen Characteristics. The screen and its fastenings shall:

A. Be capable of supporting twice the weight of the glazing,

B. Be firmly and substantially fastened to the framing members, and

C. Have a mesh opening of no more than 1 inch by 1 inch.

3. Screens, Not Required. Screens shall not be required when fully-tempered glass is used as single glazing or the bottom pane in multiple glazing and either of the following conditions are met:

A. Glass area 16 square feet or less: Highest point of glass not more than 12 feet above a walking surface or other accessible area, nominal glass thickness not more than 3/16 inch (5mm), and (for multiple glazing only) the other pane or panes fully-tempered, laminated or wired glass.

B. Glass area greater than 16 square feet: Glass sloped 30 degrees or less from vertical, and highest point of glass not more than 10 feet above a walking surface or other accessible area.

4. Screens with Multiple Glazing. When the inboard pane is fully-tempered, heat-strengthened, or wired glass, a retaining screen meeting the requirements of Section 308.6.7 shall be installed below the glass, except for either condition listed in Section 308.6.5. All other panes in the multiple glazing may be of any type listed in Section 308.6.2.

47.1045. Skylights and sloped glazing. Definition is any installation of glass or other transparent or translucent glazing material installed at a slope of 15 degrees or more from vertical. Glazing materials in skylights, solariums, sun spaces, roofs and sloped walls are included in this definition.

47.1050. Wind Loads. Safety glass or glass areas in exterior walls in screens, in partitions and in other openings subject to wind loading shall be capable of safely withstanding the wind loads as shown in Section 301, 18 lbs. psf, acting either inward or outward. In the case of regular plate, float or sheet glass supported on four sides, the design shall be not less than 2 1/2. Adjustment factors for other types of glass are given in Table No. 1.

Table No. 1
RELATIVE RESISTANCE TO WIND LOAD
(Assuming equal thickness)

Glass Type	Approximate Relationship*
Laminated	0.6
Wired Glass	0.5
Heat-strengthened	2.0
Tempered	4.0
Scaled Insulated Glass**	1.5
Rough-rolled Plate	1.0
Sandblasted	0.4
Regular Plate or Sheet	1.0

* - Before using Wind Load Chart, divide the design wind load from Section 301 by the value shown for the glass type involved.

** - Use thickness of the thinner of the two lights, not thickness of unit.

Table No. 2 - Wind Load Chart
REQUIRED NOMINAL THICKNESS OF REGULAR PLATE,
FLOAT OR SHEET GLASS
Based on Minimum Thicknesses Allowed in Federal Specification
DDG-00451 b Before Weathering
(Design Factor = 2.5)

WIND PRESSURE, psf

Design wind load from Section 301 - Pounds-per-square-foot chart applies for
Ratios of width-to-length from 2:10 to 10:10.

47.1055. Windows. Windows shall be tested and certified to indicate compliance with the requirements of the following specifications listed in Section S-26.411:

1. Aluminum: AAMA (ANSI) 101
2. Wood: ANSI/NWWDA I.S. 2
3. Polyvinyl Chloride: ASTM D4099

4. Exceptions:

A. Regardless of the type or requirements of the windows set forth in the aforementioned specifications, no window may be selected whose air infiltration exceeds 0.50 cfm per linear foot of crack when tested in accordance with ASTM E283 listed in Section S-26.411 at a pressure differential of 1.56 psf.

B. When selecting windows in accordance with the aforementioned specifications, the design loading shall not exceed $66 \frac{2}{3}$ percent of the uniform structural test loading set forth in the specification.

Subchapter C - Electrical Code

47.1200. Adoption of an Electrical Code. The National Electrical Code 1996, published by the National Fire Protection Association, is hereby adopted and incorporated by reference as the Electrical Code of the City of Holts Summit, Missouri, with the additions, insertions, deletions, and changes contained in this Subchapter.

47.1205. Electrical Inspection. The administration and enforcement of the Electrical Code shall be the responsibility of the Mayor or his designated representative, who is hereby authorized to take such action as may be reasonably necessary to enforce this Chapter. The designated representative shall be the Code Enforcement Officer. **OR BUILDING INSPECTOR????/b**

47.1210. Licenses Required. No person, firm, or corporation shall engage in the business of electrical work in the City of Holts Summit unless licensed by the City. Each person, firm, or corporation engaged in the business of electrical work within the City shall be or have in its employ at least one (1) journeyman electrician. For purposes of this Chapter, the "business of electrical work" shall be defined as the supplying of labor and materials for the installation, alteration, or repair of electrical systems. No person, firm, or corporation shall cause any electrical work to be done, altered, or repaired by an apprentice electrician unless the apprentice electrician works directly under the supervision of a licensed journeyman electrician. An apprentice electrician Certificate shall authorize the grantee to perform electrical work only when under the immediate supervision of a journeyman electrician holding an unsuspended license. All electrical work relating to the installation of signs shall be performed by a licensed electrician with the exception of electrical wiring that is an integral part of the construction of the sign.

1. License fee, and duration, and renewal. A business license application as stated under **Section 54.010** of the Holts Summit City Code is required to obtain an electrical contractor's business license. The calendar year for each licensing period ends on June 30. The license is renewable annually. The City will grant a business license to a duly licensed electrician of another City of the State of Missouri provided that such applicant has been

licensed by a City having adopted an electrical code and electrical examination requirements. Such license must be a permanent license.

2. Suspension or Revocation of License. The Board of Aldermen may suspend or revoke the business license of any journeyman, or master electrician when charges are proffered against them, and the Board of Aldermen finds that the person charged is incompetent or has willfully violated the provisions of this Chapter or the electrical code. Before any action is taken by the Board of Aldermen, the person charged shall be given at least ten (10) days prior notice of the time and place of a formal hearing on said charges and the person charged shall be apprised of the nature of the charges. The person charged shall be given the opportunity to appear in person or with an attorney of his choice, in order to be heard, and such person shall have the burden of showing cause why the license should not be suspended or revoked. The Board of Aldermen shall render its decision within five (5) days. The decision shall be final and no administrative appeal shall be allowed therefrom. The decision of the Board of Aldermen may suspend the license of the person charged for such period as the Board determines proper under all the facts and circumstances, or the Board may permanently revoke the license of the person charged.

3. Assignment of license. No person who has obtained any license from the City may allow his name to be used by another person either for the purpose of obtaining permits, or for doing business or electrical work under the license. Every person licensed shall notify the City Clerk of the address of their place of business, if any, and the name under which such business is carried on and shall give immediate notice to the Clerk of any change in either.

47.1215. Homeowner permits. A permit may be issued to any person to do work in a single family dwelling used exclusively for living purposes, including the usual accessory buildings and quarters in connection with such building, provided that the person is a bona fide owner of such dwelling and that the same will be occupied by said owner for a period of not less than one (1) year and that said owner shall personally purchase all materials and perform all labor in connection therewith, and that the applicant shall sign a home owners statement certifying that these conditions are correct before the issuance of a permit. Work performed under any permit shall be subject to all applicable regulatory provisions of this Subsection.

47.1220. Multi-family permits. A permit may be issued to the owner of a multi-family dwelling used exclusively for living purposes, including the usual accessory buildings and quarters in connection with such building, provided that the person is a bona fide owner of such dwelling and the same shall be owned by said owner for a period of not less than one (1) year and that said owner shall purchase all materials and perform all labor in connection therewith, and that the applicant shall sign a home owners statement certifying that these conditions are correct before the issuance of a permit. ***A person holding a license as a Master Electrician must inspect the dwelling and must sign a statement of completion that the work was accomplished in accordance with the above stated codes.***

47.1225. Permits, when required. A permit shall be required for all electrical wiring in structures not previously wired.

47.1230. Standards of work. An Occupancy Permit shall not be issued unless the qualified electrician signs the electrical statement of completion stating that the job is in strict conformity with the provisions of this Chapter, and was accomplished in conformity with the approved methods of construction for safety to life and property.

47.1235. Copied in City Clerk's Office. Three copies of this ordinance and of the National Electrical Code 1996, as amended from time to time, shall be kept on file in the office of the City Clerk, and there kept available for public use, inspection, and examination.

Subchapter D - Plumbing Code

47.1300. Adoption of a plumbing code. The BOCA National Plumbing Code, Ninth Edition, 1993, is hereby adopted and incorporated by reference as the Plumbing Code of the City of Holts Summit, Missouri, with the additions, insertions, deletions, and changes contained in this subchapter.

47.1305. City Clerk to maintain three copies of the BOCA National Plumbing Code, Ninth Edition, 1993. The City Clerk shall keep three copies of the BOCA National Plumbing Code, Ninth Edition, 1993, on file available for public inspection, use, and examination.

47.1310. Chapter 115 and Subchapter E to control over this subchapter. In the event that any rule or requirement found in this subchapter or the BOCA National Plumbing Code, Ninth Edition, 1993, is inconsistent with any provision of Chapter 115 or Subchapter E of this Chapter of the Holts Summit, Missouri, City Code, then the relevant provision found in Chapter 113 or Chapter 115 shall control over any such inconsistent rule or requirement of this chapter or said BOCA National Plumbing Code.

47.1315. Additions, Insertions and Changes. The following sections of the BOCA National Plumbing Code, Ninth Edition, 1993, are hereby revised as follows:

1. Section P=101.1 (page 1, second line). Insert "the City of Holts Summit, Missouri" in place of [NAME OF JURISDICTION].

2. Section P-113.2 (page 4, third line). Insert the following list of fees in place of [JURISDICTION TO INSERT APPROPRIATE SCHEDULE]: No schedule of fees.

3. Section P-116.4 (page 5, seventh, eighth, and ninth lines). Insert "misdemeanor" in place of [SPECIFY OFFENSE]; insert "\$500" in place of [AMOUNT]; insert "180 days" in place of [NUMBER OF DAYS].

4. Section P-177.2 (page 5, fifth and sixth lines). Insert: "\$150" in place of first [AMOUNT] and insert "\$500" in place of second [AMOUNT].

5. Section P-304.3 (page 13, third line). Insert: "(Governed by **Chapter 113** of the Holts Summit, Missouri, City Code" in place of [DISTANCE IN FEET].

6. Section P-309.4 (page 14, second and third lines). Insert: "three" in place of first [NUMBER] and "0" in place of second [NUMBER].

7. Section P-309.5 (page 14, second and fourth lines). Insert: "two" in place of first [NUMBER] and "0" in pace of second [NUMBER].

47.1320. Plumbing Inspection. The administration and enforcement of the Plumbing Code shall be the responsibility of the Mayor or his designated representative, who is hereby authorized to take such action as may be reasonably necessary to enforce this Subchapter. The designated representative shall be the Code Enforcement Officer. **OR BUILDING OR P&Z INSPECTOR?**

47.1325. Licenses required. No person, firm, or corporation shall engage in the business of plumbing work in the City of Holts Summit unless licensed by the City. Each person, firm, or corporation engaged in the business of plumbing work within the City shall be or have in its employ at least one 91) journeyman plumber. For purposes of this Chapter, the "business of plumbing work" shall be defined as the supplying of labor and materials for the installation, alteration, or repair of a plumbing system. No person, firm, or corporation shall cause any plumbing work to be done, altered, or repaired by an apprentice plumber unless the apprentice plumber works directly under the supervision of a licensed journeyman plumber. An apprentice plumber Certificate shall authorize the grantee to perform plumbing work only when under the immediate supervision of a journeyman plumber holding an unsuspended license.

1. License fee, and duration, and renewal. A business license application as stated under Section 54.010 of the Holts Summit City Code is required to obtain a plumbing contractor's business license. The calendar year for each licensing period ends on June 30. The license is renewable annually. The City will grant a business license to a duly licensed plumber of another City of the State of Missouri provided that such applicant has been licensed by a City having adopted a plumbers code and examination requirements. Such license must be a permanent license.

2. Suspension or Revocation of License. The Board of Aldermen may suspend or revoke the business license of any journeyman, or master plumber when charges are proffered against them, and the Board of Aldermen finds that the person charged is incompetent or has willfully violated the provisions of this Subchapter or the plumbing code. Before any action is taken by the Board of Aldermen, the person charged shall be given at least ten (100 days prior notice of the time and place of a formal hearing on said charges and the person charged shall be apprised of the nature of the charges. The person charged shall be given the opportunity to appear in person or with an attorney of his choice, in order to be heard, and such person shall have the burden of showing cause why the license should not be suspended or revoked. The Board of Aldermen shall render its decision within five (5) days.

The Decision shall be final and no administrative appeal shall be allowed therefrom. The decision of the Board of Aldermen may permit the person charged to continue their trade and dismiss the charge, the Board of Aldermen may suspend and license of the person charged for such period as the Board determines proper under all the facts and circumstances, or the Board may permanently revoke the license of the person charged.

3. Assignment of license. No person who has obtained any license from the City may allow his name to be used by another person either for the purpose of obtaining permits, or for doing business or electrical work under the license. Every person licensed shall notify the City Clerk of the address of their place of business, if any, and the name under which such business is carried on and shall give immediate notice to the Clerk of any change in either.

47.1330. Homeowner permits. A permit may be issued to any person to do work in a single family dwelling used exclusively for living purposes, including the usual accessory buildings and quarters in connection with such building, provided that the person is a bona fide owner of such dwelling and that the same will be occupied by said owner for a period of not less than one (1) year and that said owner shall personally purchase all materials and perform all labor in connection therewith, and that the applicant shall sign a home owners statement certifying that these conditions are correct before the issuance of a permit. Work performed under any permit shall be subject to all applicable regulatory provisions of this Subchapter.

47.1335. Multi-family permits. A permit may be issued to the owner of a multi-family dwelling used exclusively for living purposes, including the usual accessory buildings and quarters in connection with such building, provided that the person is a bona fide owner of such dwelling and the same shall be owned by said owner for a period of not less than one (1) year and that said owner shall purchase all materials and perform all labor in connection therewith, and that the applicant shall sign a home owners statement certifying that these conditions are correct before the issuance of a permit. ***A person holding a license as a Master Plumber must inspect the dwelling and must sign a statement of completion that the work was accomplished in accordance with the BOCA Code.***

47.1340. Standards of work. An Occupancy Permit shall not be issued unless the qualified plumber signs the plumbing statement of completion stating that the job is in strict conformity with the provisions of this Subchapter.

Subchapter E - Sewers and Drainage

47.1400. Definitions. Unless the context specifically indicates otherwise, the meaning of terms used in this Subchapter shall be as follows:

1. BOD (denoting biochemical oxygen demand). The quantity of oxygen utilized in the biochemical oxidation of organic matter under standard laboratory procedure in five (5) days at twenty (20) degrees centigrade, expressed in milligrams per liter.

2. Building drain. The part of the lowest horizontal piping of a drainage system which receives the discharge from sanitary sewage pipes inside the walls of the building and conveys it to the building sewer, beginning five (5) feet outside the inner face of the building wall.

3. Building sewer. The extension from the building drain to the public sewer or other place of disposal.

4. Combined sewer. A sewer receiving both surface runoff and sewage.

5. Garbage. Solid waste from the domestic and commercial preparation, cooking, and dispensing of food, and from the handling, storage, and sale of produce.

6. Industrial wastes. The liquid wastes from industrial manufacturing processes, trade, or business as distinct from sanitary sewage.

7. Natural outlet. Any outlet into a watercourse, pond, ditch, lake, or other body of surface or ground waters.

8. On-site sewage disposal systems. Any and all sewage disposal facilities situated on a single piece of property and serving only facilities on that property.

9. Person. Any individual, firm, company, association, society, corporation, or group.

10. pH. The logarithm of the reciprocal of the weight of hydrogen ions in grams per liter of solution.

11. Properly shredded garbage. The wastes from the preparation, cooking, and dispensing of foods that have been shredded to such a degree that all particles will be carried freely under the flow conditions normally prevailing in public sewers, with no particle greater than one-half (1/2) inch in any dimension.

12. Public sanitary sewer. A sewer in which all owners of abutting properties have equal rights, and which is controlled by public authority.

13. Sanitary sewage. The liquid or water-carried waste discharged from the sanitary conveniences of dwellings, including apartment houses and hotels, office buildings, factories, institutions, etc.

14. Sanitary sewer. A sewer which carries sewage and to which storm, surface, and ground water are not intentionally admitted.

15. Sewage. A combination of the water-carried wastes from residences, business buildings, institutions, and industrial establishments, together with such ground, surface, and storm waters not intentionally admitted that may be present.

16. Sewage treatment plant. Any arrangement of devices and structures used for treating sewage.

17. Sewage works. All facilities for collecting, pumping, treating, and disposing of sewage.

18. Sewer. A pipe or conduit for carrying sewage.

19. Shall. Shall is mandatory; May is permissive.

20. Slug. Any discharge of water, sewage, or industrial waste which in concentration of any given constituent or if quantity of flow exceeds for any period or duration longer than fifteen (15) minutes more than five (5) times the average twenty-four hour concentration or flows during normal operation.

21. Storm drain (sometimes termed storm sewer). A sewer which carries storm and surface water and drainage, but excludes sewage and industrial wastes, other than unpolluted cooling air.

22. Superintendent. The superintendent of sewage works and/or of water pollution control of the City of Holts Summit, or his authorized deputy, agent, or representative.

23. Suspended solids. Solids that either float on the surface of, or are in suspension in water, sewage, or other liquids, and which are removable by laboratory filtering.

24. Watercourse. A channel in which a flow of water occurs, either continuously or intermittently.

47.1410. Use of Public Sewer Required. It shall be unlawful for any person to place, deposit, or permit to be deposited in any unsanitary manner on public or private property within the City of Holts Summit, or in any area under the jurisdiction of the City, any human or animal excrement, garbage, or other objectionable waste.

47.1415. Discharge of Polluted Waste Prohibited. It shall be unlawful to discharge to any natural outlet within the City of Holts Summit, or in any area under the jurisdiction of the City, any sewage or other polluted waters, except where suitable treatment has been provided in accordance with subsequent provisions of this Subchapter.

47.1420. Construction of Septic Tanks, etc., Unlawful; Connection to Public Sewer Required.

1. Except as hereinafter provided, it shall be unlawful to construct or maintain any privy, privy vault, septic tank, cesspool, or other facility intended or used for the disposal of sewage.

2. The owner of all houses, buildings, or properties used for human employment, recreation, or other purposes, situated within the City and abutting on any street, alley, or right-of-way in which there is now located a public sanitary sewer of the City, is hereby required at his expense to install suitable toilet facilities therein, and to connect such facilities directly with the proper public sewer in accordance with the provisions of this Subchapter within sixty (60) days after date of official notice to do so, provided that said public sewer is available within one hundred fifty (150) feet of the property line of the residence, unless the Sewer Commission **with official approval of the Board of Aldermen** of the City determines that such connection to the public sewer system is unfeasible from an engineering standpoint or constitutes an unreasonable economic burden under the circumstances. Nothing in this section, however, shall excuse any person from complying with or from liability for violations of federal, state, or local water pollution and sewage laws and regulations.

3. All on-site sewage systems shall comply with the Missouri Department of Natural Resources Rules and Regulations set forth by the Department of Health Rules 19 CSR 20-3.060 (minimum construction standards for on-site sewage disposal systems) including laws 701.25 through 701.59 thereof.

47.1425. On-site sewage disposal. Where a public sanitary sewer is not available under the provisions of Section 113.025 the building sewer shall be connected to an on-site sewage disposal system complying with the provisions of this Subchapter.

47.1430. Permit required; fee. Before commencement of construction of an on-site sewage disposal system, the owner shall first obtain a written permit signed by the superintendent. The application for such permit shall be made on a form furnished by City, which the applicant shall supplement by any plans, specifications, and other information as are deemed necessary by the superintendent. A permit and inspection fee of fifty dollars (\$50.00) shall be paid to the City at the time the application is filed.

47.1435. Inspection of Installation to be made before Covering. An operation permit for an on-site sewage disposal system shall not become effective until the installation is completed to the satisfaction of the superintendent. He shall be allowed to inspect the work at any state of construction and, in any event, the applicant for the permit shall notify the superintendent when the work is ready for final inspection, and before any underground portions are covered. The request for an inspection shall be made not less than twenty-four (24) hours in advance of the inspection.

47.1440. Installation shall comply with recommendations. The type, capacities, location, and layout of an on-site sewage disposal system shall comply with all applicable laws and recommendations of the Department of Health of the State of Missouri. No permit shall be issued for any on-site sewage disposal system employing subsurface soil absorption facilities

where the area of the lot is less than fifteen thousand (15,000) square feet. No septic tank shall be permitted to discharge to any natural outlet.

47.1445. Connection required upon availability of sewer. At such time as a public sewer becomes available to a property served by an on-site sewage disposal system, as provided in Section 113.030, a direct connection shall be made to the public sewer in compliance with this Chapter, and any on-site sewage disposal facilities shall be abandoned and filled with suitable material unless the on-site sewage disposal facility is made a part of the public sewer system.

47.1450. Sanitary maintenance of on-site sewage facilities by owner. The owner shall operate and maintain the on-site sewage disposal facilities in a sanitary manner at all times, at no expense to the City.

47.1455. Statements not to interfere with additional requirements. No statement contained in this Subchapter shall be construed to interfere with any additional requirements that may be imposed by other applicable law.

47.1460. Closing of on-site disposal system. When a public sewer becomes available within one hundred fifty (150) feet of the property line, the building sewer shall be connected to said sewer within sixty (60) days and the on-site sewage disposal system shall be cleaned of sludge and filled with clean bank-run gravel or dirt unless the on-site sewage disposal facility is made a part of the public sewer system, unless such connection is determined to be unfeasible or unreasonable as provided in Section 113.025.

47.1465. Permit required for building sewers and connections.

1. No person, except persons otherwise authorized by the Superintendent, shall uncover, make any connections with, make any opening into, use, alter, or disturb any public sewer or appurtenance thereof without first obtaining a written permit from the Superintendent.

2. The owner or general agent of a building, lot or premises where a violation of any provision of this Subchapter has been committed or shall exist, or the owner, general agent, lessee, or tenant of any part of the building or premises on which such a violation has occurred, shall be subject to a fine of not less than ten dollars (\$10.00) nor more than five hundred dollars (\$500.00), unless the offense be willful, on conviction thereof the offender shall pay a fine of not less than one hundred dollars (\$100.00) nor more than five hundred dollars (\$500.00).

3. Any connection to the public sewer system made in violation of this Subchapter shall be immediately disconnected upon notice to the property owner or may be disconnected or blocked by the Superintendent until a permit is obtained.

47.1470. Classes of building sewer permits; fees. There shall be two (2) classes of building sewer permits allowing hook-up to public sanitary sewers:

1. For residential and commercial service; and
2. For service to establishments producing industrial wastes.

In either case, the owner or his agent shall make application on a special form furnished by the City. The permit application shall be supplemented by any plans, specifications, or other information considered pertinent in the judgment of the Superintendent. A permit and inspection fee of fifty dollars (\$50.00) for a residential or commercial building sewer permit and one hundred dollars (\$100.00) for an industrial building sewer permit shall be paid to the City at the time the application is filed.

47.1475. Installation and connection costs to be borne by owner. All costs and expenses incident to the installation and connection of the building sewer shall be borne by the owner. The owner shall indemnify the City from any loss or damage that may directly or indirectly be occasioned by the installation of the building sewer.

47.1480. Separate sewer for each building; exception. A separate and independent building sewer shall be provided for every building; except where one building stands at the rear of another on an interior lot and no private sewer is available or can be constructed to the rear building through an adjoining alley, court, yard, driveway, the building sewer from the front building may be extended to the rear building and the whole considered as one building sewer.

47.1485. Requirements for old building sewers. Old building sewers may be used in connection with new buildings only when they are found, on examination and test by the Superintendent, to meet all requirements of this Subchapter.

47.1490. Construction of sewer to conform to building and plumbing codes. The size, slope, alignment, material of construction of a building sewer, and the methods to be used in excavating, placing of the pipe, jointing, testing, and backfilling the trench, shall all conform to the requirements of the building and plumbing code or other applicable rules and regulations of the City. In the absence of code provisions or in application thereof, the material and procedures set forth in appropriate specifications of the A.S.T.M. and W.P.C.F. Manual of Practice No. 9 shall apply.

47.1495. Elevation of building sewer. Whenever possible, the building sewer shall be brought to the building at an elevation below the basement floor. In all buildings in which any building drain is too low to permit gravity flow to the public sewer, sanitary sewage carried by such building drain shall be lifted by an approved means and discharged to the building sewer.

47.1500. Surface runoff and groundwater prohibited from draining into sanitary sewer. No person shall make connection of roof downspouts, interior and exterior foundation drains, areaway drains, or other sources of surface runoff or groundwater to a building sewer or building drain which in turn is connected directly or indirectly to a public sanitary sewer.

47.1505. Standards for connection into public sewer. The connection of the building sewer into public sewer shall conform to the requirements of the building and plumbing code or other applicable rules and regulations of the City, or the procedures set forth in appropriate specifications of the A.S.T.M. and the W.P.C.F. Manual of Practice No. 9. All such connections shall be made gastight and watertight. Any deviation from the prescribed procedures and materials must be approved by the Superintendent before installation.

47.1510. Connection to be made under supervision of Superintendent. The applicant for the building sewer permit shall notify the Superintendent when the building sewer is ready for inspection and connection to the public sanitary sewer. Such notification shall be made not less than twenty-four (24) hours prior to the inspection. The connection shall be made under the supervision of the Superintendent or his representative.

47.1515. Excavations to be guarded and restored. All excavations for building sewer installations shall be adequately guarded with barricades and lights so as to protect the public from hazard. Streets, sidewalks, parkways, and other public property disturbed in the course of the work shall be restored in a manner satisfactory to the City.

47.1520. Waters prohibited from being discharged into sanitary sewer. No person shall discharge or cause to be discharged any storm water, surface water, groundwater, roof runoff, subsurface drainage, including interior and exterior foundation drains, uncontaminated cooling water, or unpolluted industrial process waters to any sanitary sewer.

47.1525. Discharge into storm sewers. Storm water and all other unpolluted drainage shall be discharged to such sewers as are specifically designated as combined or storm sewers, or to a natural outlet approved by the Superintendent. Industrial cooling water or unpolluted process waters may be discharged, on approval of the Superintendent, to a storm sewer, combined sewer, or natural outlet.

47.1530. Substances prohibited from all public sewers. No person shall discharge or cause to be discharged any of the following described waters or wastes into any public sanitary sewers:

1. Any gasoline, benzene, naphtha, fuel oil, or other flammable or explosive liquid, solid, or gas.
2. Any waters or wastes containing toxic or poisonous solids, liquids, or gases in sufficient quantity, either singly or by interaction with other wastes, to injure or interfere with any sewage treatment process, constituting a hazard to humans or animals, creating a public nuisance, or creating any hazard in the receiving waters of the sewage treatment plant including but not limited to cyanide in excess of one-tenth (0.1) mg/1 as CN in the wastes as discharged to the public sanitary sewer.
3. Any waters or wastes having a pH lower than five and five-tenths (5.5), or having any other corrosive property capable of causing damage or hazard to structures, equipment, and personnel of the sewage works.

4. Solid or viscous substances in quantities or of such size capable of causing obstruction to the flow in sewers, or other interference with the proper operation of the sewage works such as, but not limited to, ashes, cinders, sand, mud, straw, shavings, metal, glass, rags, feathers, tar, plastics, woods, unground garbage, whole blood, paunch manure, hair and fleshing, entrails, and paper dishes, cups, milk containers, etc., either whole or ground by garbage grinders.

5. Any waters or wastes having:

A. A five-day BOD greater than six hundred (600) milligrams per liter, or

B. Containing more than three hundred fifty (350) milligrams per liter of suspended solids, or

C. Having an average daily flow greater than two (2) percent of the average sewage flow of the City, shall be subject to the review of the Superintendent.

6. Where necessary in the opinion of the Superintendent, the owner shall provide at his expense such preliminary treatment as may be necessary to:

A. Reduce biochemical oxygen demand to six hundred (600) milligrams per liter, or

B. Reduce the suspended solids to three hundred fifty (350) milligrams per liter, or

C. Control the quantities and rates of discharge of such waters or wastes.

7. Plans, specifications, and any other pertinent information relating to proposed preliminary treatment facilities shall be submitted for the approval of the Superintendent and no construction of such facilities shall be commenced until said approvals are obtained in writing. (Revised: Ord. 522)

47.1535. Additional prohibited substances. No person shall discharge or cause to be discharged the following described substances, materials, waters, or wastes if it appears likely in the opinion of the Superintendent that such wastes can harm either the sewers, sewage treatment process, or equipment, having an adverse effect on the receiving stream, or can otherwise endanger life, limb, public property, or constitute a nuisance. In forming his opinion as to the acceptability of these wastes, the Superintendent will give consideration to such facts as the quantities of subject wastes in relation to flows and velocities in the sewers, materials of construction of the sewers, nature of the sewage treatment process, capacity of the sewage treatment plant, degree of treatability of wastes in the sewage treatment plant, and other pertinent factors. The substances prohibited are:

1. Any liquid or vapor having a temperature higher than one hundred fifty (150) degrees Fahrenheit (sixty-five (65) degrees centigrade).

2. Any water or waste containing fats, wax, grease, or oils, whether emulsified or not, in excess of one hundred (100) mg/l or containing substances which may solidify or become viscous at temperatures between thirty-two (32) and one hundred fifty (150) degrees Fahrenheit (zero and sixty-five (65) degrees centigrade).

3. Any garbage that has not been properly shredded. The installation and operation of any garbage grinder equipped with a motor of three-fourths (3/4) horsepower (0.76 hp metric) or greater shall be subject to the review and approval of the Superintendent.

4. Any waters or wastes containing strong acid iron pickling wastes, or concentrated plating solutions whether neutralized or not.

5. Any waters or wastes containing iron, chromium, copper, zinc, and similar objectionable or toxic substances; or wastes exerting an excessive chlorine requirement, to such degree that any such material received in the composite sewage at the sewage treatment works exceeds the limits established by the Superintendent for such materials.

6. Any waters or wastes containing phenols or other taste or odor-producing substances, in such concentrations exceeding limits which may be established by the Superintendent as necessary, after treatment of the composite sewage, to meet the requirements of the state, federal, or other public agencies of jurisdiction for such discharge to the receiving waters.

7. Any radioactive wastes or isotopes of such half-life or concentration as may exceed limits established by the Superintendent in compliance with applicable state or federal regulations.

8. Any waters or wastes having a pH in excess of nine and five-tenths (9.5).

9. Materials which exert or cause:

A. Unusual concentrations of inert, suspended solids (such as, but not limited to, Fuller's earth, lime slurries, and lime residues) or of dissolved solids (such as, but not limited to, sodium chloride and sodium sulfate).

B. Excessive discoloration (such as, but not limited to, dye wastes and vegetable tanning solutions).

C. Unusual BOD (biochemical oxygen demand) or chlorine requirements in such quantities as to constitute a significant load on the sewage treatment works.

D. Unusual volume of flow or concentration of waters constituting "slugs" as defined herein.

10. Waters or wastes containing substances which are not amenable to treatment or reduction by the sewage treatment processes employed, or are amendable to treatment only to such degree that the sewage treatment plant effluent cannot meet the requirements of other agencies having jurisdiction over discharge to the receiving waters.

47.1540. Remedies for Prohibited Discharged into Sewers.

1. If any waters or wastes are discharged or are proposed to be discharged to the public sewers, which waters contain the substances or possess the characteristics enumerated in Sections 113.135 and 113.140 of the City Code and which in the judgment of the Superintendent may have a deleterious effect upon the sewage works, processes, equipment, or receiving waters, or which otherwise create a hazard to life or constitute a public nuisance, the Superintendent may:

- A. Reject the wastes;
- B. Require pretreatment to an acceptable condition for discharge to the public sanitary sewers;
- C. Require control over the quantities and rates of discharge; and/or
- D. Require payment to cover the added costs of handling and treating wastes not covered by existing taxes or sewer charges under the provisions of Section 113.145(2) of the City Code.

2. If the Superintendent permits the pretreatment or equalization of waste flows, the design and installation of the plants and equipment shall be subject to the review and approval of the Superintendent, and subject to the requirements of all applicable codes, ordinances, and laws.

47.1545. Interceptors; Specifications. Grease, oil, and sand interceptors shall be provided for the proper handling of liquid wastes containing grease in excessive amounts, or any flammable wastes, sand, or other harmful ingredients; except that such interceptors shall not be required for private living quarters or dwelling units. All interceptors shall be of a type and capacity approved by the Superintendent and shall be located as to be readily and easily accessible for cleaning and inspection. Minimum capacity of a grease or oil trap shall be seven hundred fifty (750) gallons. Minimum capacity of a sand trap shall be one thousand (1,000) gallons.

47.1550. Maintenance Requirements for Preliminary Treatment Facilities. Where preliminary treatment or flow-equalizing facilities are provided for any waters or wastes, they

shall be maintained continuously in satisfactory and effective operation by the owner at his expense.

47.1555. Requirements for Manhole and Meters., etc. When required by the Superintendent, the owner of any property serviced by a building sewer carrying industrial wastes shall install a suitable control manhole together with such necessary meters and other appurtenances in the building sewer to facilitate observation, sampling, and measurement of the wastes. Such manhole, when required, shall be accessibly and safely located and shall be constructed in accordance with the plans approved by the Superintendent. The manhole shall be installed by the owner at his expense and shall be maintained by him so as to be safe and accessible at all times.

47.1560. Standards for Analyses; Sampling Techniques. All measurements, tests, and analyses of the characteristics of water and wastes to which reference is made in this Chapter shall be determined in accordance with the latest edition of "Standard Methods for the Examination of Water and Wastewater," published by the American Public Health Association, and shall be determined at the control manhole provided, or upon suitable samples taken at said control manhole. In the event that no special manhole has been required, the control shall be considered to be the nearest downstream manhole in the public sewer to the point at which the building sewer is connected. Sampling shall be carried out by customarily accepted methods to reflect the effect of constituents upon the sewage works and to determine the existence of hazards of life, limb, and property. (The particular analyses involved will determine whether a twenty-four hour composite of all outfalls of a premises is appropriate or whether a grab sample or samples should be taken. Normally, but not always, BOD and suspended solids analyses are obtained from twenty-four hour composites of all outfalls whereas pHs are determined from periodic grab samples.)

47.1565. Agreements Between City and Industry Concerning Acceptance of Unusual Wastes. No statement contained in this Subchapter shall be construed as preventing any special agreement or arrangement between the City and any industrial concern whereby an industrial waste of unusual strength or character may be accepted by the City for treatment, subject to payment, therefor, by the industrial concern.

47.1570. Destruction or Damage to System, a Violation. Without the prior written consent of the Superintendent, no person shall break, damage, destroy, uncover, deface, or tamper with any structure, appurtenance, or equipment that is part of the sewage works.

47.1575. Powers and Authority of Inspectors. The Superintendent and other duly authorized employees of the City bearing proper credentials and identification shall be permitted to enter all properties for the purposes of inspection, observation, measurement, sampling, and testing in accordance with the provisions of this Subchapter. The Superintendent or his representatives shall have no authority to inquire into any processes including metallurgical, chemical, oil, refining, ceramic, paper, or other industries beyond that point having direct bearing on the kind and source of discharge to the sewers or waterways or facilities for waste treatment.

47.1580. City Employees to Observe Safety Rules. While performing the necessary work on private properties referred to in Section 113.190, the Superintendent or duly authorized employees of the City shall observe all safety rules applicable to the premises established by the owner, and the owner shall be held harmless for injury or death to the City employees, and the City shall indemnify the owner against loss or damage to its property by City employees and against liability claims and demands for personal injury or property damage asserted against the owner and growing out of the gauging and sampling operation, except as such may be caused by negligence or failure of the owner to maintain safe conditions as required in Section 113.160.

47.1585. Easement Permitting Entry for Inspection, etc. The Superintendent and other duly authorized employees of the City bearing proper credentials and identification shall be permitted to enter all private properties through which the City holds a duly negotiated easement for the purpose of, but not limited to, inspection, observation, measurement, sampling, repair, and maintenance of any portion of the sewer works lying within said easement. All entry and subsequent work, if any, on said easement shall be done in full accordance with the terms of the duly negotiated easement pertaining to the private property involved.

47.1590. Pump Station Specifications. The City will not accept for public dedication, nor agree to maintain or operate, any sewage pump station which, at the time the request is made for the City to operate, maintain, or take over such pump station, serves less than four (4) separate businesses or residences. Any pump station for which the owner is requesting the City to assume responsibility, must be built according to the specifications of the City, the Ten State Standards for sewer construction attached to Or. #984 and using equipment and materials specified by the City. Specifications for individual pumps shall be as follows: F.E. Meyers, 1-1/4", Model WGL20-21-15 Grinder Pump, 230 Volt, single phase, 2 HP, 3450 RPM, 60 hertz motor with 10' stainless steel lifting chain and 15" of electric cable. (Ord. 1245, 3-12-01)

47.1595. Superintendent of Sewage Works. There is hereby created the position of Superintendent of Sewage Works and Water Pollution Control of the City of Holts Summit, Missouri, who shall be appointed by the Board of Aldermen. The Superintendent shall be responsible for administering the provisions and requirements of this Subchapter and shall have all the duties, responsibility, and authority granted to the Superintendent under this Subchapter. The Superintendent shall work closely with the Sewer Commission of the City of Holts Summit, Missouri, and shall also assist the Sewer Commission in carrying out their duties and responsibilities including, but not limited to, performing or contracting for the performance of repair, maintenance and construction of sewers, lagoons, and treatment facilities in the City of Holts Summit, Missouri. The Superintendent shall be entitled to receive compensation as may be provided for from time to time by the Board of Aldermen by ordinance. **CHECK THE PERSONNEL SECTION OF THE CODE TO SEE IF THIS HAS CHANGE. WHY IS THIS IN THIS CHAPTER?**

Subchapter F - Sidewalks, Curbs and Gutters, and Driveway Entrances Construction Of

47.1600. Construction and Maintenance of Sidewalks, Curbs, Culverts, Gutters, and Driveway Entrances. It shall be the duty of every property owner to keep the sidewalks, curbs, gutters, culverts, and driveway entrances adjacent to his property and in the City of Holts Summit, in good repair at all times and free from irregularities and offsets in the surface thereof which may render the same unsafe for use. Every culvert shall be kept clear of any obstructions which might interfere with the flow of drainage water, and it shall be the obligation of the property owner to inspect and maintain said culverts. If a culvert has an obstruction of any form which interferes with the flow of drainage water and the property owner does not correct the problem within thirty (30) days after notification from the City Maintenance Superintendent of the owner's duty to remedy such obstruction, then the City Maintenance Superintendent shall have the authority to enter onto such owner's land and use any suitable means necessary to restore the adequate flow of drainage water through such culvert. Within thirty (30) days of receipt of an invoice for the actual cost of clearing such obstruction, the owner shall pay to the City its cost incurred in remedying such obstruction, and if the same is not timely paid, the Board of Aldermen may, by ordinance, levy such cost as a special tax bill against the property on which such culvert is located, or which is adjacent to such culvert, which tax shall be collected like other special tax bills and which shall constitute a first lien on the property until paid.

47.1605. Permits Required. Prior to the construction of or improvement of any private driveway entering into or exiting from the city street, road, or alley, the owner, contractor, or other person constructing or improving said private driveway shall first obtain a permit from the City Maintenance Superintendent of the City of Holts Summit, Missouri. No permit shall be issued unless the plans and specifications for the construction or improvement of said driveway call for the placement of a drainage culvert meeting the specifications set forth in Section 91.025; provided, however, that the City Maintenance Superintendent may issue a permit where it is determined by him that proper drainage and conservation of city streets, roads, and alleys does not require the placement of such a culvert under a proposed driveway. All applications for permits hereunder shall be accompanied by an application fee of twenty-five dollars (\$25) for construction and twenty dollars (\$20) for each culvert and entrance onto a street, payable to the City of Holts Summit. (Revised: Ord. 1279, July 9, 2001)

47.1610. Concrete Construction Required, Grade, Width. All sidewalks and, where streets are hard-surfaced construction, all curbs and gutters within the public right-of-way, constructed, reconstructed, or repaired in the City of Holts Summit shall be of concrete and conform to the established grade of the street. All sidewalks shall be not less than forty-two (42) inches in width. (Revised: Ord. 678)

47.1615. Materials and Specifications. Every culvert required under this Subchapter shall be made of 16-gauge corrugated metal and shall be installed at the same grade as the drainage way slope and shall conform to the following specifications:

1. For drives no wider than twenty (20) feet, the drainage culvert thereunder shall be at least twelve (12) inches in diameter.
2. For drives more than twenty (20) feet wide but less than one hundred (100) feet wide, the culvert shall be at least fifteen (15) inches in diameter.

3. For drives one hundred (100) feet wide or wider, the culvert shall be fifteen (15) inches in diameter, and there shall be an interim drainage inlet into the culvert in the center of said drive.

47.1620. City Maintenance Superintendent to Supervise Work. All work of constructing, reconstructing, or repairing of sidewalks, curbs and gutters, and driveway entrances shall be done under the supervision of the City Maintenance Superintendent.

47.1625. Specifications for Driveway Entrances for Residential Properties.

1. All driveway approaches shall be concrete or asphalt.
2. Minimum depth of concrete or asphalt shall be six (6) inches.
3. Minimum width of driveway entrance shall be twelve (12) feet.
4. Maximum width of driveway entrance shall be twenty (20) feet.
5. Each driveway entrance shall have two (2) foot wing approaches, six (6) inches in depth.
6. A smooth cut is required on the street where driveway entrance is connected.
7. Curb and gutter requirements (cuts and construction) shall be provided for on all roadways currently having curb and gutter.
8. The minimum depth of a driveway entrance shall be no less than six (6) feet from the edge of the pavement. (Revised July 13, 1998).

47.1630. Request for Variance to Section XXXX (91.040.) The City Maintenance Superintendent shall hereby review any and all requests filed with the City Clerk's office by any person or persons requesting a variance pertaining to the specifications for driveway entrances as set forth in Section **XXXX (91.040.)** The procedure for such request shall be as follows:

1. The City Maintenance Superintendent shall prepare a request form, similar to Exhibit A attached hereto, which copies of same shall be made available at the office of the City Clerk, whereby any person requesting a variance to the driveway entrance specifications may fill out said form and return to the City Clerk.
2. Upon receipt of such request, the City Clerk shall forward and make same available to the City Maintenance Superintendent.
3. The applicant shall have the right to appeal the decision of the City Maintenance Superintendent to the Street Commission within thirty (30) days following the

ruling of the City Maintenance Superintendent. The Street Commission shall review same, and provide an opportunity to the applicant to make a presentation before the Commission, and shall notify said applicant of the time and place where the Street Commission holds its regularly scheduled meetings.

4. After full review, the Street Commission shall rule on said request, if necessary by majority vote.

5. The applicant shall have the right to appeal the decision of the Street Commission to the Board of Aldermen within thirty (30) days following the ruling of the Street Commission.

6. If any person chooses to appeal the ruling to the Board of Aldermen, they may do so by filing a written request with the City Clerk's Office. Ord. #1304.

47.1635. Specifications for Driveway Entrances for Commercial Properties.

1. All driveway approaches shall be concrete;
2. Minimum depth of concrete shall be six inches;
3. Minimum width of driveway entrance shall be twenty feet;
4. Maximum width of driveway entrance shall be forty feet;
5. Each commercial driveway entrance shall have a five foot radius and be a minimum six inches in depth;
6. A smooth cut is required on the street where driveway entrance is connected;
7. Curb and gutter requirements (cuts and construction) shall be provided for on all roadways currently having curb and gutter;
8. The minimum distance from the edge of the pavement to the back of the approach shall be no less than six feet in length;
9. A commercial business operating out of a residential district, such as an in-home occupation, shall be considered as a residential property. (November 9, 1998 - Ord. 1046)

WHAT ABOUT CHAPTER 93 - EXCAVATIONS>\?? SHOULDN'T THAT BE IN THIS CODE?

Subchapter G- Street Specifications

47.1700. Streets and Alleys; Rights-of-way, Design.

1. The widths of right-of-way for streets and alleys and the improved width of roadways within such rights-of-way, unless modified by the Street Commission or the City Maintenance Superintendent because of unusual conditions or circumstances are established as follows:

A. Arterial Streets. The right-of-way shall be at least eighty feet (80) wide and the improved roadway shall be at least thirty-seven (37) feet wide (face-to-face of curb). **WHERE ARE THE DEFINITIONS FOR THIS/**

B. Collector Streets: The right-of-way shall be at least sixty (60) feet wide and improved roadway shall be at least thirty-six (36) feet wide (face-to-face of curb).

C. Alleys: The right-of-way for an alley shall be at least twenty-four (24) feet wide and the improved roadway shall be at least twenty (20) feet.

2. The minimum residential street slab thickness shall be six (6) inches Portland Cement concrete or five (5) inch black base with two (2) inch Type "C" asphaltic concrete (Missouri State Highway Specifications) with Portland Cement concrete curb and gutters. Residential street intersections shall be rounded with a radius of fifteen (15) feet for right angle intersections. All other intersections radii shall be as approved by the Board. All developers shall be required to meet this minimum requirements regardless of the street classification. Additional design requirements above the minimum specified herein shall be the responsibility of the City.

47.1705. Streets and Alleys, General Provisions.

1. All streets shall be arranged to provide for the continuation of existing streets in adjoining subdivisions and, to the extent possible, the anticipated projections of streets through adjoining unsubdivided or undeveloped property to allow for convenient movement of vehicular traffic and the orderly development of adjoining property and shall adhere to the Major Street Plan where applicable.

2. When a new subdivision adjoins undivided lands, susceptible to being subdivided, the new streets shall be carried to the boundaries of the tracts proposed to be subdivided at a later date and a temporary turnaround shall be installed at this point with gravel or other surface approved by the Street Commission.

3. Permanently designed dead-end or cul-de-sac streets shall not be longer than eight hundred (800) feet and shall be provided with a turn-around at the closed end.

4. The minimum length of a block shall be three hundred (300) feet; the maximum length of blocks shall be one thousand (1000) feet. Blocks shall be wide enough to allow two tiers of lots except where prevented by topographical conditions, in which case the Commission may alter the size.

5. Streets shall intersect one another at as near a right angle as possible and no intersection angle shall depart from a right angle more than 20 degrees.

6. All streets in exact or approximate alignment with existing named streets shall bear the names of such existing named streets. All other streets shall be assigned names which do not conflict with the names of existing streets.

7. Whenever there exists a platted half street or half alley adjacent to land platted for a subdivision, the remaining half of the street or alley shall be provided for on the plat of the subdivision.

8. The width of utility easements shall be as determined by the Board, but not less than ten (10) feet.

THE FOLLOWING APPLIES TO THIS ENTIRE CHAPTER

47.1235. Penalty clause. Any person who shall violate a provision of this Chapter or of the City Code or shall fail to comply with any of the requirements set by the Code Enforcement Officer **or Building Inspector or P&Z Inspector** shall be deemed guilty of a misdemeanor and upon conviction thereof shall be punished by a fine of not more than \$500 or by imprisonment not exceeding ninety (90) days or by both such fine and imprisonment. Each day that a violation continues shall be deemed a separate offense.

47.1240. Disclaimer clause. This Subchapter and the Electrical Code shall not be construed to relieve from or lessen the responsibility or liability of any party owning, operating, controlling, or installing any electrical wiring and electrical systems for damage caused by any defect therein or negligence of such person. The City of Holts Summit and any of its inspectors, agents, or employees, including, but not limited to the Code Enforcement Officer, shall not be liable to any party by reason of any inspection or actions provided for or taken, or inaction, pursuant to this Chapter.

47.1245. Severability. The Board of Aldermen hereby declares that, should any section, paragraph, sentence, or provision of this ordinance or of the Code hereby adopted be declared for any reason to be invalid, it is the intent of the Board of Aldermen that it would have passed all other portions of this ordinance independent of the elimination herefrom of any such portion as may be declared invalid.

SUBCHAPTER	SECTION	TITLE	SECTION NO	PAGE NO.
A	A-1	Definitions	47.100	47-1 thru 47-