ORDINANCE NO. _____

AN ORDINANCE AMENDING THE FORT WORTH RESIDENTIAL CODE, BY ADOPTING THE 2021 INTERNATIONAL RESIDENTIAL CODE, WITH LOCAL AMENDMENTS; AMENDING SECTIONS 7-61, 7-62, 7-63 AND 7-64 OF THE CODE OF THE CITY OF FORT WORTH (2015); REGULATING THE ERECTION, CONSTRUCTION, ENLARGEMENT, ALTERATION, REPAIR, MOVING, REMOVAL, DEMOLITION, CONVERSION, OCCUPANCY, EQUIPMENT, DESIGN, QUALITY OF MATERIALS, USE, HEIGHT, AREA AND MAINTENANCE OF RESIDENTIAL (DETACHED ONE- AND TWO-FAMILY, AND TOWNHOME) BUILDINGS AND STRUCTURES IN THE CITY OF FORT WORTH; DEFINING CERTAIN TERMS; PROVIDING FOR THE ISSUANCE OF PERMITS AND THE COLLECTION OF FEES THEREOF; PROVIDING FOR THE INSPECTION BUILDINGS; PROVIDING FOR A SEVERABILITY CLAUSE; PROVIDING FOR A SAVINGS CLAUSE; PROVIDING FOR A PENALTY CLAUSE; PROVIDING THAT THIS ORDINANCE SHALL BE CUMULATIVE; PROVIDING FOR PUBLICATION IN PAMPHLET FORM; PROVIDING FOR PUBLICATION IN THE OFFICIAL NEWSPAPER; AND PROVIDING AN EFFECTIVE DATE.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF FORT WORTH, TEXAS:

SECTION 1.

That Section 7-61 of the Code of the City of Fort Worth (2015) is hereby amended to read as follows:

Sec. 7-61. THE 2021 EDITION OF THE INTERNATIONAL RESIDENTIAL CODE ADOPTED.

(a) The Residential Code of the City of Fort Worth is hereby revised and amended to conform, with certain exceptions as specified below, to the 2021 edition of the International Residential Code of the International Code Council (ICC), and the same as amended is hereby adopted as the City's Residential Code.

(b) The following provisions of the Appendix to the 2021 International Residential Code are hereby specifically adopted as amended as part of the Residential Code of the City of Fort Worth:

Appendix Chapter AA, Sizing and Capacities of Gas Piping
Appendix Chapter AB, Sizing of Venting Systems Serving Appliance Equipped with Draft Hoods, Category I Appliances, and Appliances listed for use with Type B vents

Appendix Chapter AC, Exit Terminals of Mechanical Drafts and Direct-vent Venting Systems
Appendix Chapter AG, Piping Standards for Various Applications
Appendix Chapter AK, Sound Insulation Requirements for Noise Sensitive Uses near Airports (local amendment).
Appendix Chapter AN, Venting Methods
Appendix Chapter AP, Sizing of Water Piping Systems
Appendix Chapter AR, Light Straw-Clay Construction
Appendix Chapter AS, Strawbale Construction
Appendix Chapter AX, Docks, Piers and Boathouses (local amendment)

(c) The provisions of the Building Code, Mechanical Code, Plumbing Code and Energy Code, as adopted elsewhere, shall be used as part of this code for any provision, requirement or method that does not exist in this code. The Electrical Code, as adopted elsewhere, shall be used as the Electrical provisions, replacing Chapters 34 through 43 of this code.

(d) One (1) copy of the 2021 edition of the International Residential Code, marked as Exhibit "A", is incorporated herein by reference and shall be filed in the Office of the City Secretary for permanent record and inspection.

(e) Any Errata corrections published by the International Code Council for the 2021 International Residential Code, as they are discovered, are considered as part of this code.

SECTION 2.

That Section 7-62 of the Code of the City of Fort Worth (2015) is hereby amended to read as follows:

Sec. 7-62. Amendments.

The 2021 edition of the International Residential Code is hereby amended to read as follows:

CHAPTER 1 – SCOPE AND ADMINISTRATION

*IMC Chapter 1; "SCOPE AND ADMINISTRATION" is hereby deleted and the Administrative and Enforcement provision of this Code shall be governed by the Fort Worth Building Administrative Code.

CHAPTER 2 – DEFINITIONS
IRC SECTION R202
DEFINITIONS

**IRC Section R202; definitions are deleted, changed and new definitions are added to read as follows:*

ATTIC. The ~~unfinished~~ space between the ceiling assembly and the roof assembly. The installation of decking, other than the minimum decking required for equipment access and maintenance, shall be considered another floor.

ATTIC, HABITABLE. *(deleted)*

BUILDING CODE. Building Code shall mean the *International Building Code* as adopted by this jurisdiction.

~~**CHANGE OF OCCUPANCY.** A change in the purpose or level of activity within a building that involves a change in application of the requirements of this code. The definition shall also apply to the usage of the surrounding site and access to and from the building, structure or site, as necessary to achieve the purpose of this code, and to obtain compliance with other codes and ordinances of this jurisdiction.~~

CHANGE OF OCCUPANCY. Any of the following shall be considered as a change of occupancy where the current *International Building Code* requires a greater degree of safety, accessibility, structural strength, fire protection, means of egress, ventilation or sanitation than is existing in the current building or structure:

1. Any change in the occupancy classification of a building or structure.
2. Any change in the purpose of, or a change in the level of activity within, a building or structure.
3. A change of use.

The definition shall also apply to the usage of the surrounding site and access to and from the building structure or site, as necessary to achieve the purpose of this code, and to obtain compliance with other codes and ordinances of this jurisdiction.

CHANGE OF USE. A change in the use of a building or a portion of a building, within the same group classification, or from one zoning use category to another, for which there is a change in application of the code requirements.

CODE OFFICIAL. Where ever the term code official is used in this code it shall mean *building official*.

EGRESS COURT. A court or yard which provides access to a public way for one or more exits.

ELECTRICAL CODE. Electrical Code shall mean the *National Electrical Code* as adopted by this jurisdiction. For the purpose of this code, all references to NFPA 70 shall be assumed to mean the Electrical Code as defined herein.

ENERGY CODE. Energy Code shall mean the *International Energy Conservation Code* as adopted by this jurisdiction.

FIRE PREVENTION CODE (FIRE CODE). Fire Prevention Code, or Fire Code, shall mean the *International Fire Code* as adopted by this jurisdiction.

FIRE RETARDANT TREATED WOOD. Pressure-treated lumber and plywood in accordance with Sections 2303.2, 2303.2.1, 2303.2.2, 2303.2.3 and 2303.2.4 of the Building Code that exhibit reduced surface burning characteristics and resist propagation of fire.

~~**Other means during manufacture.** A process where the wood raw material is treated with a fire-retardant formulation while undergoing creation as a finished product.~~

~~**Pressure process.** A process for treating wood using an initial vacuum followed by the introduction of pressure above atmospheric~~.

FORT WORTH BUILDING ADMINISTRATIVE CODE. The Fort Worth Administrative code containing the administrative, organizational, and enforcement rules and regulations for the Fort Worth Building, Residential, Plumbing, Fuel Gas, Mechanical, Electrical, Sign and Existing Building codes.

FUEL GAS CODE. Fuel Gas code shall mean the *International Fuel Gas Code* as adopted by this jurisdiction and shall be considered as part of the Plumbing Code. (See Plumbing Code.)

MECHANICAL CODE. Mechanical Code shall mean the *International Mechanical Code* as adopted by this jurisdiction.

MEDIA ROOM. A space intended primarily for viewing or listening to media. Space may include but are not limited to large screen televisions, surround sound systems, and comfortable seating.

OCCUPIED ROOF. Uncovered roof or roof deck, designed to be occupied for uses other than mechanical equipment or building services, including but not limited to swimming pools, dining, amusement, gardens and parking. Such areas shall be considered as another level in which an occupancy exists.

PATIO COVER. One-story structures not exceeding 12 feet (3657 mm) in height. Enclosure walls shall be permitted to be of any configuration, provided the open or glazed area of the longer wall and one additional wall is equal to at least 65 percent of the area below a minimum of 6 feet 8 inches (2032 mm) of each wall, measured from the floor. Openings shall be permitted to be enclosed with (1) insect screening, (2) approved translucent or transparent plastic not more than 0.125 inch (3.2 mm) in thickness, (3) glass conforming to the provisions of Section R308, or (4) any combination of the foregoing.

PLUMBING. For the purpose of using ~~this code, plumbing refers to those installations, repairs, maintenance and *alterations* regulated by~~ Chapters 25 through 33, as adopted, shall mean:

The practice, materials and fixtures utilized in the installation, maintenance, extension and alteration of all piping, fixtures, plumbing appliances and plumbing appurtenances, within or adjacent to any structure, in connection with sanitary drainage or storm drainage facilities; venting systems, and public or private water supply systems.

For the purpose of complying with the Texas State Plumbing License Law, shall mean:

All piping, fixtures, appurtenances, and appliances, including disposal systems, drain or waste pipes, or any combination of these that:

supply, recirculate, drain, or eliminate water, gas, medical gasses and vacuum, liquids, and sewage for all personal or domestic purposes in and about buildings where persons live, work, or assemble; connect the building on its outside with the source of water, gas, or other liquid supply, or combinations of these, on the premises, or the water main on public property; and carry waste water or sewage from or within a building to the sewer service lateral on public property or the disposal or septic terminal that holds private or domestic sewage.

The installation, repair, service, maintenance, alteration, or renovation of all piping, fixtures, appurtenances, and appliances on premises where persons live, work, or assemble that supply gas, medical gasses and vacuum, water, liquids, or any combination of these, or dispose of waste water or sewage.

PLUMBING CODE. Plumbing Code shall mean the *International Plumbing Code* and the *International Fuel Gas Code* as adopted by this jurisdiction. The term "Plumbing Code" applies to both codes as one combined code.

PLUMBING SYSTEM. For the purpose of using this code, as adopted, shall mean:

Includes the water supply and distribution pipes, plumbing fixtures and traps, supports and appurtenances; water-treating or water-using equipment; soil, waste and vent pipes; sanitary drains, storm sewers and building sewers to an approved point of disposal, in addition to their respective connections, devices and appurtenances within a structure or premise.

RESIDENTIAL CODE. Residential Code shall mean the *International Residential Code* as adopted by this jurisdiction.

SLEEPING ROOM. A room intended for sleeping including a closet designed to accommodate the storage of clothing.

TECHNICAL CODES. The Fort Worth Building, Residential, Plumbing, Mechanical, Electrical, Sign, and Existing Building codes which regulate the construction, alteration,

relocation, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures.

TOWNHOUSE. A single-family *dwelling unit* constructed in a group of three or more attached units individually separated by property lines in which each unit extends from foundation to roof and with a *yard* or public way on at least two sides.

WALL, RETAINING. A wall ~~not laterally supported at the top,~~ that resists lateral soil load and other imposed loads.

Part III – Building Planning and Construction

CHAPTER 3 – BUILDING PLANNING

IRC TABLE R301.2(1)
CLIMATIC AND GEOGRAPHIC DESIGN CRITERIA

**Table R301.2(1); fill in as follows:*

TABLE R301.2(1) CLIMATIC AND GEOGRAPHIC DESIGN CRITERIA												
GROUND SNOW LOAD	**WIND DESIGN**				**SEISMIC DESIGN CATEGORY[f]**	**SUBJECT TO DAMAGE FROM**			**ICE BARRIER UNDERLAYMENT REQUIRED[h]**	**FLOOD HAZARD[g]**	**AIR FREEZING INDEX[i]**	**MEAN ANNUAL TEMP[j]**
	Speed[d] (mph)	Topographic effects[k]	Speical wind region[l]	Wind-borne debris zone[m]		Weahtering[a]	Frost line depth[b]	Termite[c]				
5lb/ft²	105 mph (3-sec-gust)	NO	NO	NO	A	Moderate	6"	very heavy	NO	local code	150	64.9° F
MANUAL J DESIGN CRITERIA[n]												
Elevation		**Altitude correction factor[e]**	**Coincident wet bulb**	**Indoor winter design dry-bulb temperature**	**Indoor winter design dry-bulb temperature**			**Outdoor winter design dry-bulb temperature**		**Heating temperature difference**		
686'			75° F		70° F			25° F				
Latitude		**Daily range**	**Indoor summer design relative humidity**	**Indoor summer design relative humidity**	**Indoor summer design dry-bulb temperature**			**Outdoor summer design dry-bulb temperature**		**Cooling temperature difference**		
33°		M	50%	55%	75° F			99° F				

IRC TABLE R301.5
MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS
(in pounds per square foot)

**IRC Table R301.5; delete the rows "Uninhabitable attics with limited storage[b,g]", "Habitable attics and attics served with fixed stairs", and footnote g.*

IRC SECTION R302
FIRE-RESISTANT CONSTRUCTION

**IRC SectionR302.1; changed to read as follows:*

R302.1 Exterior walls. Construction, projections, openings and penetrations of *exterior walls* of *dwellings* and accessory buildings shall comply with Table R302.1(1); or *dwellings* equipped throughout with an *automatic sprinkler system* installed in accordance with Section P2904 shall comply with Table R302.1(2)

Exceptions:

1. Walls, projections, openings or penetrations in walls perpendicular to the line used to determine the *fire separation distance*.
2. Walls of *dwellings* and *accessory structures* located on the same lot.
3. One-story detached *accessory structures* used as ~~Detached~~ tool sheds and storage sheds, playhouses and similar structures, provided the floor area does not exceed 200 square feet (18.58 m2), ~~exempted from permits~~ are not required to provide wall protection based on location on the *lot*. Projections beyond the *exterior wall* shall not extend over the *lot line*.
4. Dwellings, detached garages, tool sheds, storage sheds and other accessory buildings ~~to a *dwelling*~~ located within 2 feet (610 mm) of a lot line are permitted to have roof eave projections not exceeding 4 inches (102 mm). Projections beyond the *exterior wall* shall not extend over the *lot line*.
5. Foundation vents installed in compliance with this code are permitted.
6. Open non-combustible carport structures may be constructed within zero (0) feet of the property line without fire-resistive or opening protection when the location of such is approved as required by other City ordinances.

**IRC Section R302.2.1; changed to read as follows:*

R302.2.1 Double walls. Each *townhouse unit* shall be separated from other *townhouse units* by two 1-hour fire-resistance-rated wall assemblies tested in accordance with ASTM E119, UL 263 or Section 703.2.2 of the *International Building Code.* (See Figure R302.2.1)

**IRC Section R302.2.2; changed to read as follows:*

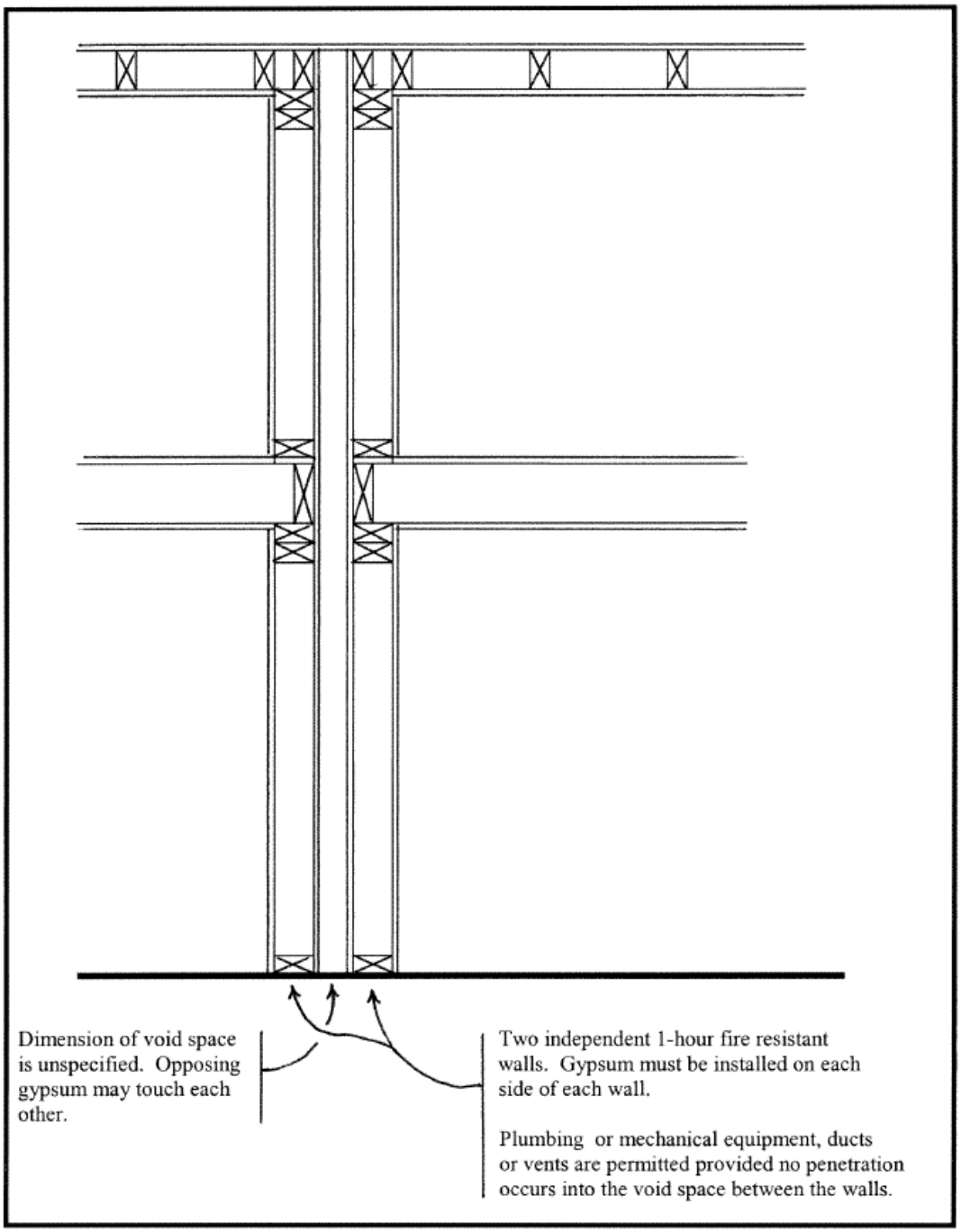
R302.2.2 Common walls. Common walls separating *townhouse units* shall be assigned a fire-resistance rating in accordance with Item 1 or 2 and shall be rated for fire exposure from both sides. Common walls shall extend to and be tight against the exterior sheathing of the exterior

walls, or the inside face of exterior walls without stud cavities, and the underside of the roof sheathing. The common wall shared by two *townhouse units* shall be constructed without plumbing or mechanical equipment, ducts or vents, other than water-filled fire sprinkler piping in the cavity of the common wall. Electrical installations shall be in accordance with Chapters 34 through 43. Penetrations of the membrane of common walls for electrical outlet boxes shall be in accordance with Section R302.4. (See Figures R302.2.2(1) and R302.2.2(2))

1. Where an automatic sprinkler system in accordance with Section P2904 is provided, the common wall shall be not less than a 1-hour fire-resistance-rated wall assembly tested in accordance with ASTM E119, UL 263 or Section 703.2.2 of the *International Building Code*.
2. Where an automatic sprinkler system in accordance with Section P2904 is not provided, the common wall shall be not less than a 2-hour fire-resistance-rated wall assembly tested in accordance with ASTM E119, UL 263 or Section 703.2.2 of the *International Building Code*.

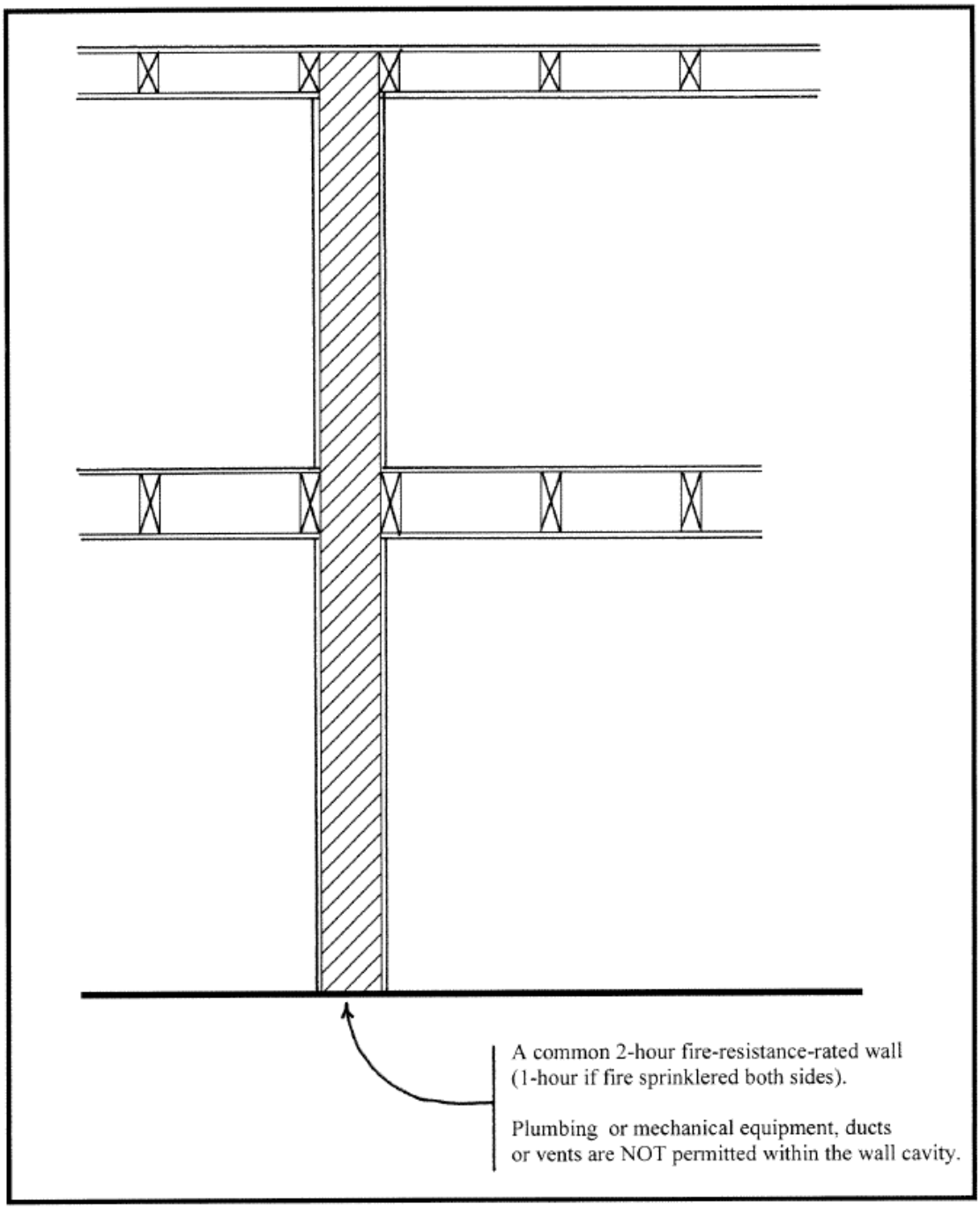
Exception: Common walls are permitted to extend to and be tight against the inside of the exterior walls if the cavity between the end of the common wall and the exterior sheathing is filled with a minimum of two 2-inch nominal thickness wood studs.

Figure R302.2.1
Townhouse Separation
Two 1-hour walls



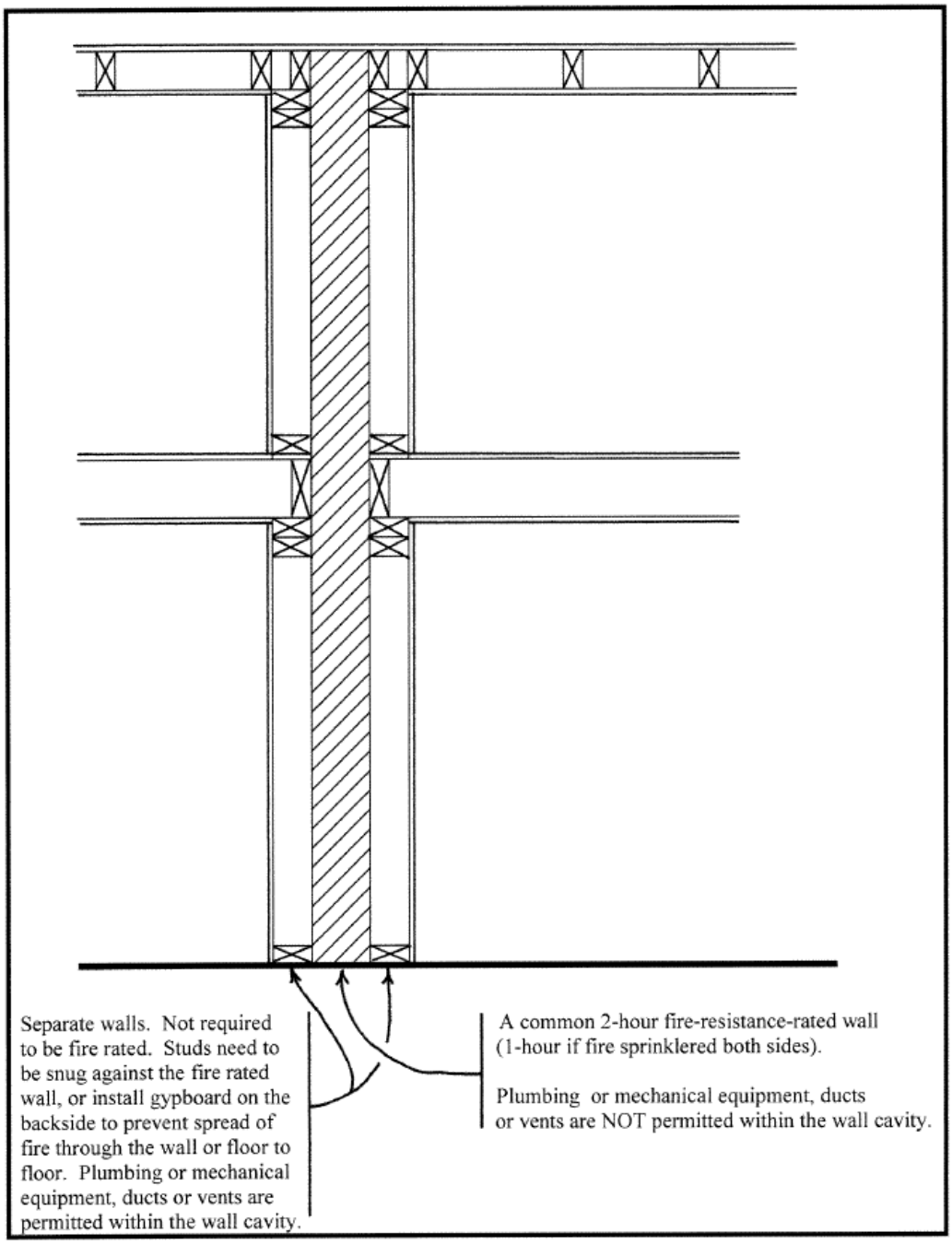
Notes:
For Separation Continuity, See Section R302.2.3.
For Parapets, See Section R302.2.4.
For Penetrations, See Sections R302.4 and R302.5.

Figure R302.2.2(1)
Townhouse Separation
Single 2-hour Wall (1-hour if fire sprinklered)



Notes:
For Separation Continuity, See Section R302.2.3.
For Parapets, See Section R302.2.4.
For Penetrations, See Sections R302.4 and R302.5.

Figure R302.2.2(2)
Townhouse Separation
Multiple Walls



Notes:
For Separation Continuity, See Section R302.2.3.
For Parapets, See Section R302.2.4.
For Penetrations, See Sections R302.4 and R302.5.

**IRC Section 302.3; add an exception 3 and 4 to read as follows:*

3. Newly constructed two-family dwelling units that are also divided by a property line through the structure shall be separated as required for townhouses.
4. Existing two-family dwelling units divided by a property line with a replat shall comply with this code or with the following:
   a. All penetrations in the existing demising wall will be fire-caulked and sealed to prevent and/or reduce penetration of fire.
   b. All holes shall be appropriately repaired, patched and sealed.
   c. The dividing wall must be continued through the attic space to the underside of the roof deck with no less than 5/8" Type-X gypsum board each side.

**IRC Section 302.7; changed to read as follows:*

R302.7 Under-stair protection. Enclosed space under stairs that is accessed by a door or access panel shall have walls, under-stair surface and any soffits protected on the enclosed side with 5/8-inch (15.8 mm) fire-rated ~~½-inch (12.7 mm)~~ gypsum board or one-hour fire-resistive construction.

Exception: Not less than ½-inch gypsum board or equivalent when the dwelling unit is provided with a fire sprinkler system, and sprinkler head coverage is provided in the enclosed accessible space.

IRC SECTION R303
LIGHT, VENTILATION AND HEATING

**IRC Section R303.3, exception; changed to read as follows:*

Exception: The glazed areas shall not be required where artificial light and a local exhaust system, complying with one of the following, are provided.

1. The minimum local exhaust rates shall be determined in accordance with Section M1507. Exhaust air from the space shall be exhausted directly to the outdoors. For the purpose of this exception, to the outdoors shall mean through the wall or roof deck using approved products installed in accordance with manufacturer's installation instructions. Or, in lieu of the exterior, bathroom vents may terminate within 6" of an attic eave vent

2. Bathrooms that contain only a water closet, lavatory or water closet and a lavatory may be ventilated with an approved mechanical recirculating fan or similar device designed to remove odors from the air.

IRC Section 303.9; add exception 4 to read as follows:

4. Required glazed openings may face into a patio cover when in compliance with Section R328.

IRC Section R303.10; change to read as follows:

R303.10 Required heating. ~~When the winter design temperature in Table R301.2(1) is below 60°F (16°C), every~~ Every *dwelling unit* shall be provided with heating facilities capable of maintaining a room temperature of 68°F (20°C) at a point 3 feet (914 mm) above the floor and 2 feet (610 mm) from exterior walls in all habitable rooms at the design temperature. The installation of one or more portable space heaters shall not be used to achieve compliance with this section.

IRC SECTION R311
MEANS OF EGRESS

IRC Section R311.1.1; added to read as follows:

R311.1.1 Fire separation distance. Exterior stairways and ramps shall have a minimum of 3 feet *fire separation distance* as defined in this code, measured from the outside edge of the stair or ramp.

IRC SECTION R312
GUARDS AND WINDOW FALL PROTECTION

IRC Section R312.2.1; add #3 to read as follows:

3. Operable windows without fall protection installed in the original portion of a historical contributing structure, when creating or installing new windows, or when adjusting the window dimensions of an existing window, as approved by the Historical Cultural and Landmark Commission during their approval process when determined to be appropriate to maintain the historical significance.

[F] IRC SECTION R313
AUTOMATIC FIRE SPRINKLER SYSTEMS

IRC Section R313; deleted.

IRC SECTION R314
SMOKE ALARMS

**IRC Section R314.3; Change #2 and add item #6 to read as follows:*

R314.3 Location. Smoke alarms shall be installed in the following locations:

1. In each sleeping room.
2. Outside each separate sleeping area and each media room in the immediate vicinity of the bedrooms and media room.
3. On each additional story of the *dwelling*, including *basements* and *habitable attics* and not including crawl spaces and uninhabitable *attics*. In *dwellings* or *dwelling units* with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full *story* below the upper level.
4. Not less than 3 feet (914 mm) horizontally from the door or opening of a bathroom that contains a bathtub or shower unless this would prevent placement of a smoke alarm required by this section.
5. In the hallway and in the room open to the hallway in *dwelling units* where the ceiling height of a room open to a hallway serving bedrooms exceeds that of the hallway by 24 inches (610 mm) or more.
6. In each *media room*

IRC SECTION R315
CARBON MONOXIDE ALARMS

**IRC Section R315.2.2; exception 2 changed to read as follows:*

Exceptions:

2. Installation*, alteration* or repair of electrical or plumbing systems.

IRC SECTION R317
PROTECTION OF WOOD AND WOOD-BASED PRODUCTS AGAINST DECAY

**IRC Section R317.1; change item 3 to read as follows:*

3. Sills and sleepers on a concrete or masonry slab that is in direct contact with the ground unless separated from such slab by an impervious moisture barrier, except that all exterior wall bottom plates shall be of naturally durable or *preservative-treated wood*.

**IRC Section R317.5; added to read as follows:*

R317.5 Weather exposure. All wood or other products exposed to the weather shall be painted or treated with an approved treatment, or shall possess a natural or inherent protection method.

IRC SECTION R318
PROTECTION AGAINST SUBTERRANEAN TERMITES

**IRC Section R318.1; changed and an exception added to read as follows:*

R318.1 Subterranean termite control. In areas favorable to damage from termites as indicated by Table R301.2, protection shall be one of the following methods, or a combination of the following methods, or provided with other industry accepted methods of termite protection.

{*Items 1 through 6 unchanged*}

Exception: When chemicals or other methods of protection are undesirable to the owner/buyer provided an exposed exterior surface in compliance with Figure R401.3 is provided.

IRC SECTION R322
FLOOD-RESISTANT CONSTRUCTION

**IRC Section R322.1; changed to read as follows:*

R322.1 General. Buildings and structures, when permitted to be constructed in whole or in part in flood hazard areas, including A or V Zones and Costal A Zones, as established ~~in Table R301.2~~ by other applicable regulations and substantial improvements and *repair* of substantial damage of buildings and structures in flood hazard areas shall be designed and constructed in accordance with the provisions specified by the Department of Transportation and Public Works or, when permitted, as contained in this section. Buildings and structures that are located in more than one flood hazard area shall comply with the provisions associated with the most restrictive flood hazard area. Buildings and structures located in whole or in part in identified floodways shall be designed and construed in accordance with the provisions specified by the Department of Transportation and Public Works or, when permitted, in accordance with ASCE 24.

IRC SECTION R327
SWIMMING POOLS, SPAS AND HOT TUBS

**IRC Section R327.1.1; added to read as follows:*

R327.1.1 Adjacency to Structural Foundation. Depth of the swimming pool and spa shall maintain a ratio of 1:1 from the nearest building foundation or footing of a retaining wall.

Exception: A sealed engineered design drawing of the proposed new structure shall be submitted for approval.

IRC SECTION R331
WOOD RETAINING WALLS

**IRC Section R331; added to read as follows:*

R331 Wood retaining walls. Wood retaining walls exceeding four (4) feet in height shall be constructed of new wood properly treated for such use. Measurement shall be from the bottom of the footing to the top of the wall.

IRC SECTION R332
PATIO COVERS

**IRC Section R332; added to read as follows:*

R332.1 Scope. *Patio covers* shall conform to the requirements of this section.

R332.2 Permitted uses. *Patio covers* shall be permitted to be detached from or attached to *dwelling units*. *Patio covers* shall be used only for recreational, outdoor living purposes and not as carports, garages, storage rooms or habitable rooms.

R332.3 Light and Ventilation/Emergency Egress. Exterior openings required for light and ventilation shall be permitted to open into a *patio cover*, provided that the *patio cover* shall be unenclosed if such openings are serving as emergency egress or rescue openings from *sleeping rooms*. Where such exterior openings serve as an exit from the *dwelling unit*, the *patio cover*, unless unenclosed, shall be provided with exits confirming to the provisions of Section R311.

CHAPTER 4 – FOUNDATIONS

IRC SECTION R401
GENERAL

**IRC Section 401.2; add second paragraph to read as follows:*

R401.2 Requirements. Foundation construction …*{bulk of section unchanged}* … installed and tested in accordance with accepted engineering practice.

Every foundation and/or footing, or any size addition to an existing post-tension foundation, regulated by this code shall be designed and sealed by a Texas-registered engineer.

**IRC Section 401.3; changed to read as follows:*

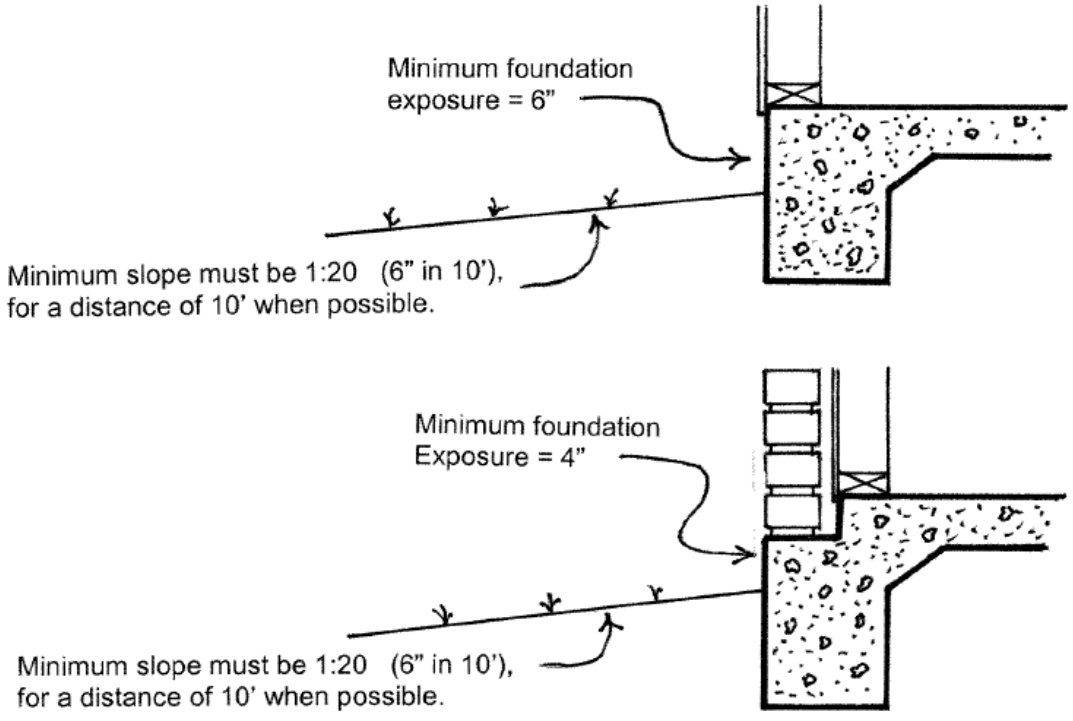
R401.3 Drainage. Surface drainage shall be diverted to a storm sewer conveyance or other approved point of collection that does not create a hazard. Lots shall be graded to drain surface water away from the foundation ~~walls~~. The grade shall fall a minimum of 6 inches (152 mm) within the first 10 feet (3048 mm). See Figure R401.3.

Exception: {*unchanged*}

IRC FIGURE R401.3
DRAINAGE AND TERMITE PROTECTION

**IRC Figure No. 401.3; added as follows:*

Figure R401.3
Drainage and Termite Protection



**IRC Section R401.5; added to read as follows:*

R401.5 Minimum distance of swimming pools from foundations. Swimming pools may not be closer to a building foundation than one horizontal foot at finish grade for every vertical foot of swimming pool depth.

Exceptions:

1. Systems designed by an engineer registered in the State of Texas.
2. Swimming pools 5 feet or greater from the foundation.

IRC SECTION R403
FOOTINGS

**IRC Section R403.1.1; add a sentence and a second paragraph to read as follows:*

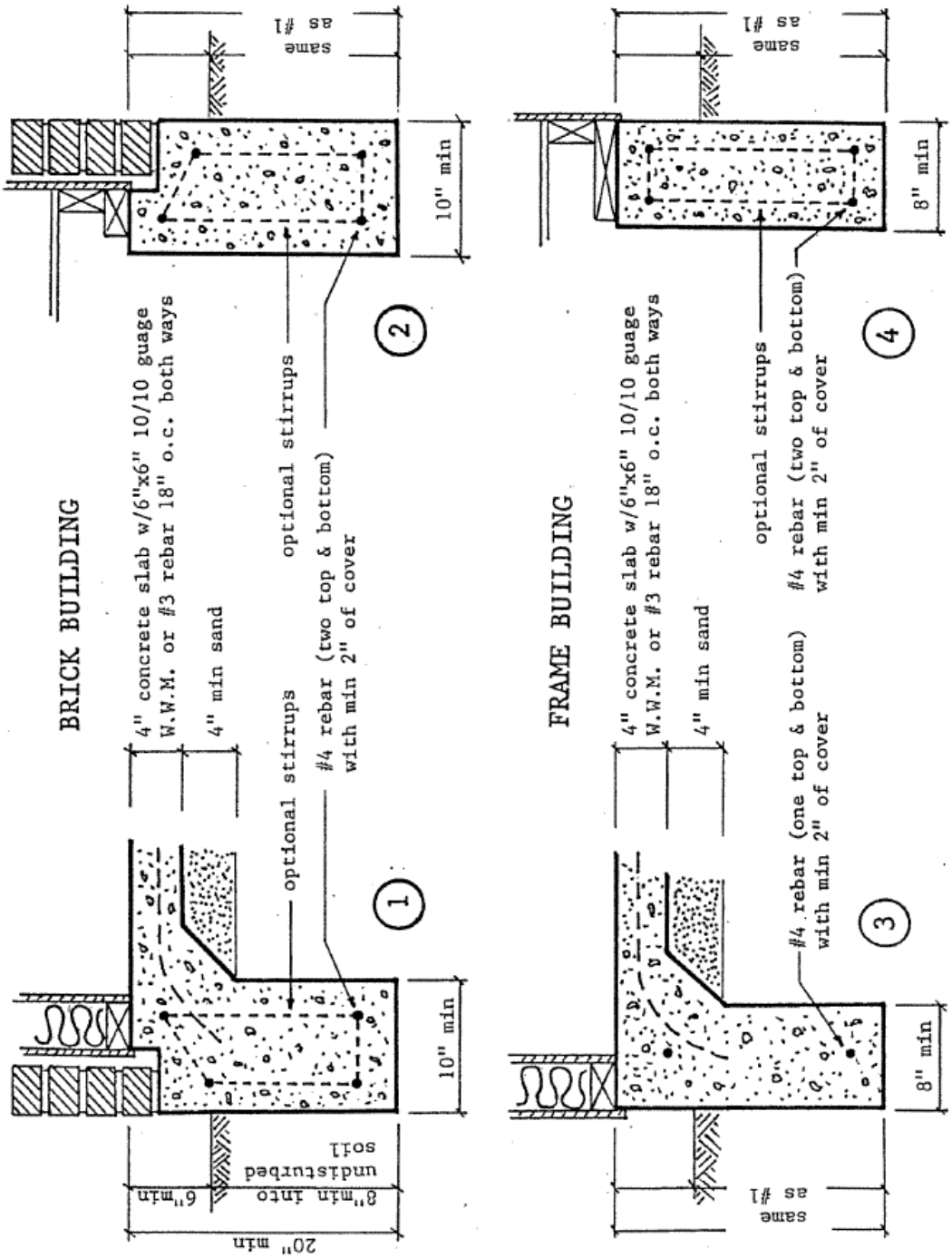
Before using Table R403.1(1) through R403.1(3) or Table R403.4 for any value above 1,500 psf, a report establishing the load-bearing value of the soil shall be submitted.

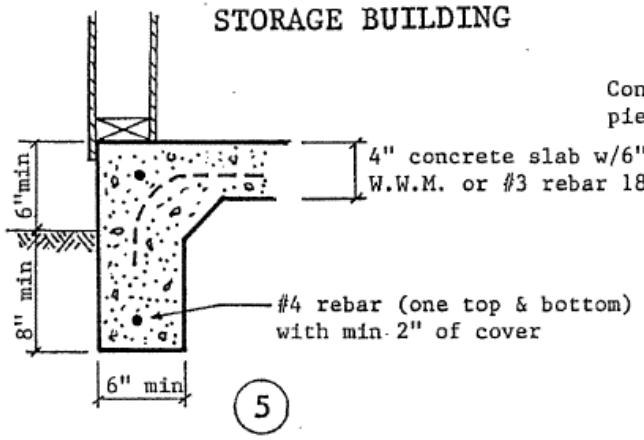
Unless in soils considered inadequate, as determined by the Building Official, for structures of standard construction in which engineering design is not used, Figure No. R403.1.1 may be accepted as an alternate foundation design for the occupancies and conditions specified.

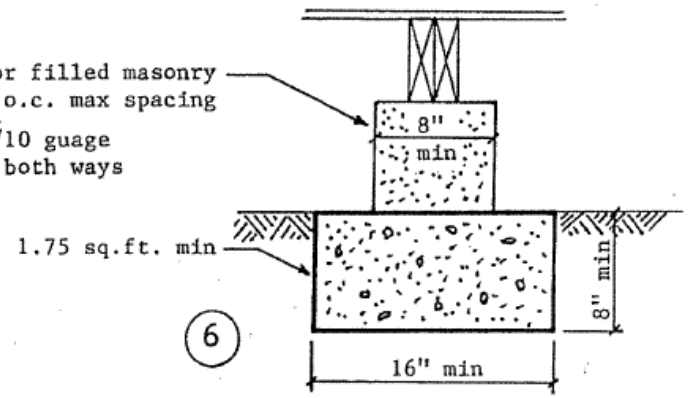
IRC FIGURE R403.1.1
PRESCRIPTIVE FOOTINGS

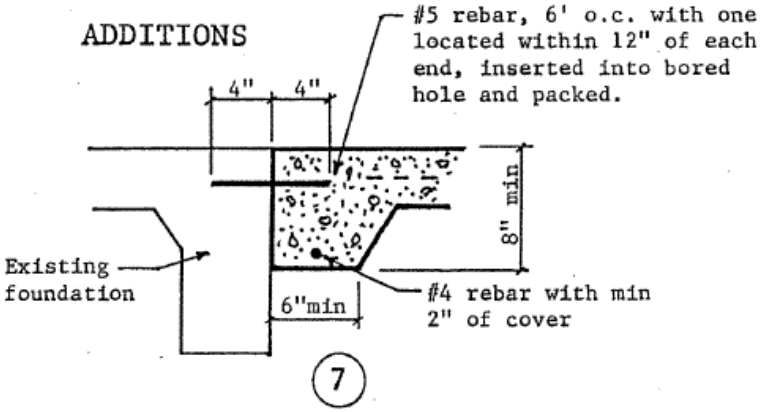
**IRC Figure No. 403.1.1; added as follows:*

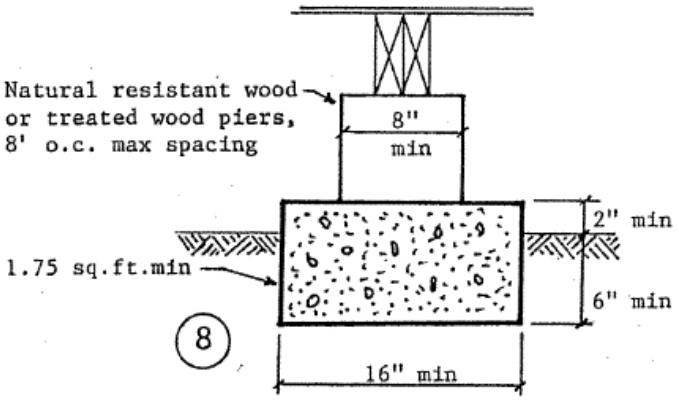
IRC FIGURE NO. R403.1.1











IRC FIGURE NO. R403.1.1

NOTE: When approved by the Building Official, figures #1 through #8 may be used for the following:

1. Groups R and U Occupancies not exceeding two (2) stories in height and of light framing construction; and,
2. Groups B, E, F, H and S Occupancies not exceeding either one (1) story in height, two thousand (2000) square feet in area, or a Unit Live Load of fifty (50) pounds per square foot.

CHAPTER 6 – WALL CONSTRUCTION

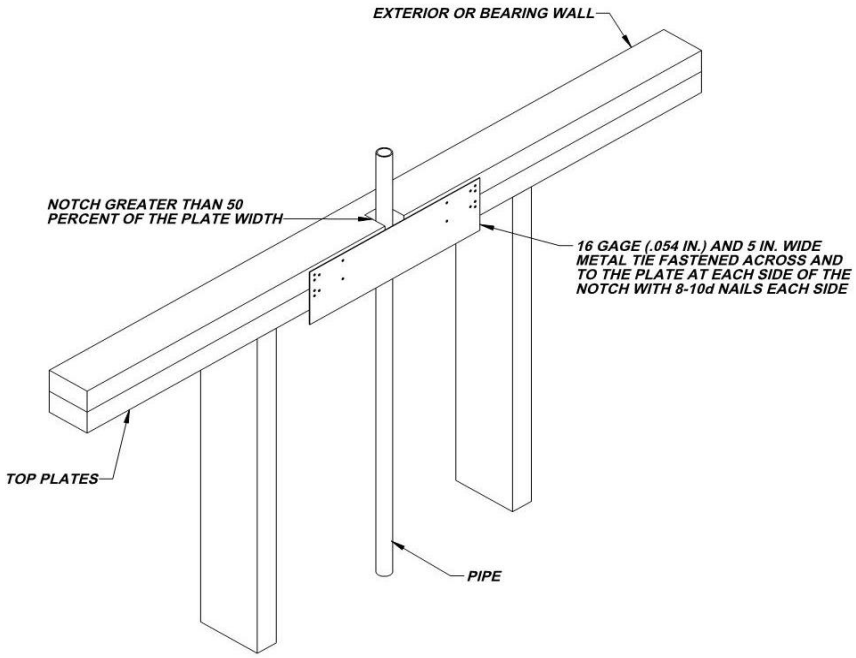
IRC SECTION R602
WOOD WALL FRAMING

**IRC Section R602.6.1; change to read as follows:*

R602.6.1 Drilling and notching of top plate. When piping or ductwork is placed in or partly in an exterior wall or interior load-bearing wall necessitating cutting, drilling or notching of the top plate by more than 50 percent of its width, a galvanized metal tie not less than 0.054 inch thick (1.37 mm) (16Ga) and ~~1 ½ inches (38mm)~~ 3 inches (76 mm) wide minimum shall be fastened across and the plate at each side of the opening with not less than eight 10d (0.148 inch) having a minimum length of 1 ½ inches (38 mm) at each side or equivalent. Fasteners will be offset to prevent splitting of the top plate material. The metal tie must extend not less than 6 inches past the opening. See Figure R602.6.1.

Exception: When the entire side of the wall with the notch or cut is covered by wood structural panel sheathing. However, piping and duct protection as required in other provisions will still be required.

**IRC Figure R602.6.1; delete and replace as follows:*



CHAPTER 7 – WALL CONVERGING

IRC SECTION R703
EXTERIOR COVERING

**IRC Section R703.8.4.1; change to read as follows:*

R703.8.4.1 Size and spacing. Veneer ties, if strand wire, shall be not less . . . *{bulk of section unchanged}* . . . Each tie shall support not more than 2.67 square feet (0.25 m^2) of wall area and shall be spaced ~~not more than 32 inches (813 mm) on center horizontally and 24 inches (635 mm) on center vertically~~ according to one of the following methods:

1. When ties are placed on studs 16" o.c., they shall be spaced no further apart than approximately 24" vertically starting approximately 12" from the foundation.
2. When ties are placed on studs 24" o.c., they shall be spaced no further apart than approximately 16" vertically starting approximately 8" from the foundation.

Exception: {*unchanged*}

**IRC Table R703.8.4(1); add a footnote "g" to read as follows:*

BACKING AND TIE	MINIMUM TIE	MINIMUM TIE FASTNER[a,c]	AIRSPACE

g. When using ties that will flex when pushed (sheet metal ties), spot bedding of cement mortar shall be installed on all such ties.

CHAPTER 8 – ROOF-CEILING CONSTRUCTION

IRC SECTION R802
WOOD ROOF FRAMING

**IRC Section R802.4.5; add an exception to read as follows:*

Exception: In lieu of bracing to a bearing wall, purlins may be braced to a double floor joists using the spans permitted by Table R502.3.1(1), Dead Load = 10 psf, for 12 o.c. spacing. If this double floor joist is not elevated above the ceiling below, but is installed such that the bottom edge is in contact with the ceiling material, the double joists must comply with the above span provisions, and also be one depth size, nominal 2", larger than the other ceiling joists.

CHAPTER 9 – ROOF ASSEMBLIES

IRC SECTION R902
FIRE CLASSIFICATION

**IRC Section 902.1; changed and exception 5 added to read as follows:*

R902.1 Roofing covering materials. Roofs shall be covered with materials as set forth in Sections R904 and R905. Class A, B or C roofing shall be installed ~~in jurisdictions designated by law as requiring their use or when the edge of the roof is less than 3 feet (914 mm) from a property line~~. Classes A, B and C roofing required by this section to be listed shall be tested in accordance with UL 790 or ASTM E 108.

Exceptions:

1. Class A roof assemblies include those with coverings of brick, masonry and exposed concrete roof deck.
2. Class A roof assemblies also include ferrous or copper shingles or sheets, metal sheets and shingles, clay or concrete roof tile, or slate installed on noncombustible decks.
3. Class A roof assemblies include minimum 16 ounces per square foot cooper sheets installed over combustible decks
4. Class A roof assemblies include slate installed over underlayment over combustible decks.
5. Non-classified roof coverings shall be permitted on one-story detached buildings of U occupancies having not more than 200 sq.ft. of projected roof area. When exceeding 200 sq.ft. of projected roof area, one-story detached buildings of U occupancies may use non-rated non-combustible coverings.

IRC SECTION R908
REROOFING

**IRC Sections R908.7and R908.8; added to read as follows:*

R908.7 Maintain existing provisions. When reroofing, or repairing existing roofing, the installer is required to insure the following items are maintained:

1. Existing roof drains and drainage systems are maintained clear an unobstructed. When in the opinion of the Building Official the existing drainage system appears inadequate, the system shall be re-evaluated and when necessary required to comply with the provisions for new construction.
2. Fire-retardant requirements are maintained.

R908.8 Attic space. Construction of a sloped or flat roof over an existing roof in a manner that creates an attic or a concealed space shall require the removal of any existing roofing material, composed of tar, asphalt or roof insulation, from the newly created attic space.

Part IV – Energy Conservation

CHAPTER 11 – [RE] ENERGY EFFICIENCY

IRC SECTION N1101
GENERAL

**IRC Section N1101.1; changed to read as follows:*

[E] 1101.1 Scope. This chapter governs the design and construction of buildings for energy efficiency.
[E] 1101.1.1 Criteria. Buildings shall be designed and constructed in accordance with the International Energy Conservation Code.

{remainder of chapter deleted1}

Part V - Mechanical

CHAPTER 13 – GENERAL MECHANICAL SYSTEM REQUIREMENTS

IRC SECTION M1305
APPLIANCE ACCESS

**IRC Section 1305.1.2; changed to read as follows:*

M1305.1.2 Appliances in attics. *Attics* containing *appliances* shall be provided . . . *{bulk of paragraph unchanged}* . . . where access is required. The clear access opening dimensions shall be a minimum of 20 inches by 30 inches (508 mm by 762 mm), ~~and~~ or larger where such dimensions are not large enough to allow removal of the largest appliance. As a minimum, access to the attic space shall be provided by one of the following:

1. A permanent stair.
2. A pull down stair with minimum weight capacity of 300 lbs.
3. An access door from an upper floor level.

4. An access panel, only when the equipment can be reached from the panel opening and only with prior approval of the code official.

Exceptions:

1. The passageway and level service space are not required where the *appliance* can be serviced and removed through the required opening
2. Where the passageway is unobstructed and not less than 6 feet (1829 mm) high and 22 inches (559 mm) wide for its entire length, the passageway shall be not greater than 50 feet (15 250 mm) in length.

Solid flooring as specified for the passageway of this section shall be flooring that complies with the provisions as required for a floor or shall not be less than one layer of ¾" plywood.

Water heaters shall not be installed in residential attics.

Exception: Tankless water heaters.

**IRC Section M1305.1.2.1; add a sentence to read as follows:*

Low voltage wiring of 50 Volts or less shall be installed in a manner to prevent physical damage.

**IRC Section M1305.1.3.3; add a sentence to read as follows:*

Low voltage wiring of 50 Volts or less shall be installed in a manner to prevent physical damage.

CHAPTER 14 – HEATING AND COOLING EQUIPMENT AND APPLIANCES

IRC SECTION M1411
HEATING AND COOLING EQUIPMENT

**IRC Section M1411.3.2; changed to read as follows:*

M1411.3.2 Drain pipe materials and sizes. Components of the condensate disposal system shall be ABS, cast iron, copper, cross-linked polyethylene, CPVC, galvanized steel, PE-RT, polyethylene, polypropylene or PVC pipe or tubing. Components shall be selected for the pressure, ~~and~~ temperature and exposure rating of the installation. Joints and connections shall be made in accordance with the applicable provisions of Chapter 30. Condensate waste and drain line size shall be not less than the discharge size of the pan but not less than ¾-inch (19 mm) nominal diameter and shall not decrease in size from the drain pan connection to the place of condensate disposal. Where the drain pipes from more than one unit are manifolded together for

condensate drainage, the pipe or tubing shall be sized in accordance with ~~an *approved* method~~ Table 314.2.2 of the *International Plumbing Code*.

CHAPTER 15 – EXHAUST SYSTEMS

IRC SECTION M1502
CLOTHES DRYER EXHAUST

**IRC Section M1502.4.1; add a sentence to read as follows:*

The size of duct shall not be reduced along its developed length nor at the point of termination.

**IRC Section M1502.4.2; changed to read as follows:*

M1502.4.2 Duct Installation. Exhaust ducts shall be support at 4-foot (1219 mm) ~~12 feet (3658 mm)~~ intervals and secured in place. The insert end of the duct shall extend into the adjoining duct or fitting in the direction of airflow. Exhaust ducts joints shall be sealed in accordance with Section M1601.4.1 and shall be mechanically fastened. Ducts shall not be joined with screws or similar fasteners that protrude ~~more than 1/8 inch (3.2 mm) into~~ the inside of the duct. Where dryer exhaust ducts are enclosed in wall or ceiling cavities, such cavities shall allow the installation of the duct without deformation.

IRC SECTION M1503
RANGE HOODS

**IRC Section M1503.6; changed to read and add exception as follows:*

M1503.6 Makeup air required. Where one or more gas, liquid or solid fuel-burning *appliance* that is neither direct-vent nor uses a mechanical draft venting system is located within a dwelling unit's air barrier, each exhaust system capable of exhausting in excess of 400 cubic feet per minute (0.19 m3/s) shall be mechanically or passively provided with makeup air at a rate approximately equal to difference between exhaust air rate and 400 cubic feet per minute. Such makeup air systems shall be equipped with not fewer than one damper complying with Section M1503.6.2.

Exception: Makeup air is not required for exhaust systems installed for the exclusive purpose of space cooling and intended to be operated only when windows or other air inlets are open. Where all appliances in the house are of sealed combustion, power-vent, unvented, or electric, the exhaust hood system shall be permitted to exhaust up to 600 cubic

feet per minute (0.28 m3/s) without providing makeup air. Exhaust hood systems capable of exhausting in excess of 600 cubic feet per minute (0.28 m3/s) shall be provided with a makeup air at a rate approximately to the difference between the exhaust air rate and 600 cubic feet per minute.

IRC SECTION M1505
MECHANICAL VENTILATION

**IRC Section M1505.2; add an exception to read as follows:*

Exception: Toilet rooms within private dwellings that contain only a water closet, lavatory or combination thereof may be ventilated with an approved mechanical recirculating fan or similar device designed to remove odors from the air.

CHAPTER 20 – BOILERS AND WATER HEATERS

IRC SECTION M2005
WATER HEATERS

**IRC Section M2005.1; changed to read as follows:*

M2005.1 General. Water heaters shall be installed in accordance with Chapter 28, the manufacturer's installation instructions and the requirements of this code. Water heaters, other than tankless water heaters, shall not be installed in an *attic*. Access to water heaters shall comply with the requirements of Section M1305.~~1.3~~. Gas-fired water heaters shall . . . *{remainder of paragraph unchanged}*.

**IRC Section 2005.2; changed to read as follows:*

M2005.2 Prohibited locations. Fuel-fired water heaters shall not be installed in a room used as a storage closet. Water heaters located in a bedroom or bathroom shall be installed in a sealed enclosure so that *combustion air* will not be taken from the living space. Access to such enclosure may be from the bedroom or bathroom when through a solid door, weather-stripped in accordance with the exterior door air leakage requirements of the *International Energy Conservation Code* and equipped with an approved self-closing device. Installation of direct-vent water heaters within an enclosure is not required.

IRC Section 2005.2.1; changed to read as follows:

M2005.2.1 Water heater access. Access to tankless water heaters that are located in an *attic* or any water heater located in an underfloor crawl space is permitted to be through a closet located in a sleeping room or bathroom where *ventilation* of those spaces is in accordance with this code.

Part VI - Fuel Gas

CHAPTER 24 – FUEL GAS

IRC SECTION G2404
GENERAL

IRC Section G2404.12; added to read as follows:

G2404.12 Location. Except as otherwise provided in this Code or other applicable ordinances, no fuel gas system or parts thereof shall be located in any lot other than the lot which is the site of the building, structure, or premises served by such facilities.

No subdivision, sale, or transfer of ownership of existing property shall be made in such manner that the area, clearance, and access requirements of this Code are decreased.

IRC SECTION G2412
GENERAL

IRC Section 2412.5; add a second paragraph to read as follows:

Both ends of each section of medium pressure corrugated stainless steel tubing (CSST) shall identify its operating gas pressure with an approved tag. The tags are to be composed of aluminum or stainless steel and the following wording shall be stamped into the tag:

"WARNING
1/2 to 5 psi gas pressure
Do Not Remove"

IRC SECTION G2415
PIPING SYSTEM INSTALLATION

IRC Section G2415.7.1; changed to read as follows:

G2415.7.1 (404.7.1) Piping through bored holes or notches. Where the piping is installed through holes or notches in framing members and the piping is located less than 1 ½ inches (38 mm) from the framing member face to which wall, roof, ceiling or floor membranes will be attached, . . . *{Remainder of section unchanged}*.

**IRC Section G2415.7.2; changed to read as follows:*

G2415.7.2 (404.7.2) Piping installed in other locations. Where the piping is located within a framing member and is less than 1 ½ inches (38 mm) from the framing members face to which wall, roof, ceiling or floor membranes will be attached, . . . *{Remainder of section unchanged}*.

**IRC Section G2415.9; changed to read as follows:*

G2415.9 (404.9) Above-ground piping outdoors. All aboveground *piping* installed outdoors shall be elevated not less . . . *{remainder of section unchanged}* . . . shall be sealed.

**IRC Section G2415.12; changed to read as follows:*

G2415.12 (404.12) Minimum burial depth. Underground *piping systems,* other than LP Gas systems regulated by the Texas Railroad Commission, shall be installed a minimum depth of ~~12~~ 18 inches (~~305~~ 458 mm) below grade~~, except as provided for in Section G2415.12.1~~.

**IRC Section G2415.12.1 (404.12.1); delete.*

IRC SECTION G2417
INSPECTIONS, TESTING AND PURGING

**IRC Section G2417.1; changed to read as follows:*

G2417.1 (406.1) General. Prior to acceptance and initial operation, all *piping* installations shall be visually inspected and *pressure tested* to determine that the materials, design, fabrication, and instillation practices comply with the requirements of this *code*. The *permit* holder shall make the applicable tests prescribed in Sections 2417.1.1 through 2417.1.5 to determine compliance with the provisions of this code. The *permit* holder shall give reasonable advance notice to the *building official* when the *piping system* is ready for testing. The *equipment*, material, power and labor necessary for the inspections and test shall be furnished by the *permit* holder and the *permit* holder shall be responsible for determining that the work will withstand the test pressure prescribed in the following tests.

**IRC Section G2417.1.3; delete.*

**IRC Section G2417.4, G2417.4.1 and G2417.4.2; changed to read as follows:*

G2417.4 (406.4) Test pressure measurement. Test pressure shall be measured with a diaphragm gauge ~~manometer or with a pressure-measuring device~~ designed and calibrated to read, record or indicate a pressure loss caused by leakage during the *pressure test* period. The source of pressure shall be isolated before the *pressure tests* are made. ~~Mechanical gauges used to measure test pressures shall have a range such that the highest end of the scale is not greater than five times the test pressure.~~ Gauges shall be calibrated per manufacturer's recommendation or at a minimum of one (1) time per year, to insure accuracy.

G2417.4.1 (406.4.1) Test pressure. {*no change*}.

G2417.4.2 (406.4.2) Test duration. Test duration shall be held for a length of time satisfactory to the code official, but not less than 15 ~~10~~ minutes.

**IRC Section 2417.4.3; added to read as follows:*

G2417.4.3 (406.4.3) Mixed gas piping systems. Welded and non-welded gas piping systems shall not be mixed without the installation of cut-off devices so that each system can be isolated and tested separately as required in this section.

Existing mixed piping systems lawfully in existence at the time of the adoption of this code may remain. Any retesting of such a mixed system shall be at the lower testing pressure required for the piping involved. Such a system shall be so labeled with the operating pressure in a manner as required by the Code Official.

IRC SECTION G2420
SHUTOFF VALVES

**IRC Section G2420.5.1 (409.5.1); changed to read as follows:*

G2420.5.1 (409.5.1) Located within the same room. The shutoff valve…*{bulk of paragraph unchanged}…* in accordance with the appliance manufacturer's instructions. A secondary shutoff valve must be installed within 3 feet (914 mm) of the firebox if appliance shutoff is located in the firebox.

IRC SECTION G2421

FLOW CONTROL

**IRC Section G2421.1 (410.1); add a second paragraph and exception to read as follows:*

Access to regulators shall comply with the requirements for access to appliances as specified in Section M1305.

Exception: A passageway or level service space is not required when the regulator is capable of being serviced and removed through the required attic opening.

IRC SECTION G2422 (411)
APPLIANCE CONNECTIONS

**IRC Section G2421.1 (410.1); delete exceptions as follows:*

G2422.1.2.3 (411.1.3.3) Prohibited locations and penetrations. Connectors shall not be concealed within, or extended through, walls, floors, partitions, ceilings or *appliance* housings.

Exceptions:

~~1. Connectors constructed of materials allowed for *piping systems* in accordance with Section G2414 shall be permitted to pass through walls, floors, partitions and ceilings where installed in accordance with Section G2420.5.2 or G2420.5.3.~~

~~2.~~ 1. Rigid steel pipe connectors shall be permitted to extend through openings in *appliance* housings.

~~3.~~ 2. *Fireplace* inserts that are factory equipped with grommets, sleeves or other means of protection in accordance with the listing of the *appliance*.

~~4. Semirigid *tubing* and *listed* connectors shall be permitted to extend through an opening in an *appliance* housing, cabinet or casing where the tubing or connector is protected against damage.~~

IRC SECTION G2439
CLOTHES DRYER EXHAUST

**IRC Section G2439.7.1; changed to read as follows:*

G2439.7.1 (614.9.1) Material and Size. Exhaust ducts shall have a smooth interior finish and shall be construed of metal a minimum of 0.016-inch (0.4 mm) thick. The exhaust duct size shall be 4" (102 mm) nominal in diameter. The size of duct shall not be reduced along its developed length nor at the point of termination.

**IRC Section G2439.7.2; changed to read as follows:*

G2439.7.2 (614.92) Duct Installation. Exhaust ducts shall be support at 4-foot (1219 mm) intervals and secured in place. The insert end of the duct shall extend into the adjoining duct or fitting in the direction of airflow. Ducts shall not be joined with screws or similar fasteners that protrude ~~more than 1/8 inch (3.2 mm) into~~ the inside of the duct. Where dryer exhaust ducts are enclosed in wall or ceiling cavities, such cavities shall allow the installation of the duct without deformation.

IRC SECTION G2445
UNVENTED ROOM HEATERS

**IRC Section G2445.2; changed to read as follows:*

G2445.2 (621.2) Prohibited use. One or more *unvented room heaters* shall not be used as the sole source of comfort heating in a dwelling unit.

Exception: Existing approved unvented heaters may continue to be used in dwelling units, in accordance with the code provisions in effect when installed, when approved by the building official unless an unsafe condition is determined to exist as described in Section R115.

IRC SECTION G2448

**IRC Section G2448.1.1; changed to read as follows:*

G2448.1.1 (624.1.1) Installation requirements. The requirements for *water heaters* relative to access, sizing, *relief valves*, drain pans and scald protection shall be in accordance with the this code. Water heaters, other than tankless water heaters, shall not be installed in attics.

Part VII - Plumbing Code

CHAPTER 25 – PLUMBING ADMINISTRATION

IRC SECTION P2503
INSPECTION AND TESTS

**IRC Section P2503.8.1 and P2503.8.2; changed to read as follows:*

P2503.8.1 (312.10.1) Inspections. Annual inspections shall be made of all backflow prevention assemblies to determine whether they are operable. In the absence of local provisions, the owner is responsible to ensure that testing is performed.

P2503.8.2 (312.10.2) Testing. Reduced pressure principle backflow preventers, double check valve assemblies, reduced pressure detector fire protection backflow prevention assemblies, double detector check valve assemblies, hose connection backflow preventers, spillproof vacuum breakers and pressure vacuum breaker assemblies shall be tested at the time of installation, immediately after repairs or relocation and at least annually. The testing procedure shall be performed in accordance with applicable local provisions. In the absence of local provisions, the owner is responsible to ensure that testing is done in accordance with one of the standards listed in the Plumbing Code Section 312.

CHAPTER 26 – GENERAL PLUMBING REQUIREMENTS

IRC SECTION P2602
INDIVIDUAL WATER SUPPLY AND SEWAGE DISPOSAL

**IRC Section P2602.3; added to read as follows:*

P2602.3 (301.8) Location. Except as otherwise provided in this Code or other applicable ordinances, no plumbing system, drainage system, building sewer, private sewage disposal system or parts thereof, shall be located in any lot other than the lot which is the site of the building, structure, or premises served by such facilities.

No subdivision, sale, or transfer of ownership of existing property shall be made in such manner that the area, clearance, and access requirements of this Code are decreased.

IRC SECTION P2603
STRUCTURAL AND PIPING PROTECTION

**IRC Section P2603.2.2; added to read as follows:*

P2603.2.2 (305.7) Protection of components of plumbing system. Components of a plumbing system installed within 3 feet along alleyways, driveways, parking garages or other locations in a manner in which they would be exposed to damage shall be recessed into the wall or otherwise protected in an approved manner.

IRC Section P2603.3; changed to read as follows:

P2603.3 Protection against corrosion. Metallic piping, except for cast iron, ductile iron and galvanized steel, shall not be placed in direct contact with steel framing members, concrete or cinder walls and floors or other masonry. Metallic piping shall not be placed in direct contact with corrosive soil. Where sheathing is used to prevent direct contact, the sheathing shall have a thickness of not less than 0.008 inch (8 mil) (0.203 mm) and the sheathing shall be made of approved material ~~plastic~~. Where sheathing protects piping that penetrates concrete or masonry walls or floors, the sheathing shall be installed in a manner that allows movement of the piping within the sheathing.

IRC Section P2603.5; changed to read as follows:

P2603.5 (305.4) Freezing. In localities having a winter design temperature of 32 degrees (0° C) or lower as shown in Table R301.2(1) of this code, above ground water, soil or waste pipes shall not be installed outside of a building, in exterior walls, in attics or crawl spaces, or in any other place subjected to freezing temperatures unless adequate provision is made to protect such pipes from freezing by insulation (3/4" wall in attics or under floor and ½" wall in exterior walls) or heat or both. Water service shall be installed not less than 12 inches (305 mm) deep and not less than 6 inches (152 mm) below the frost line.

IRC Section P2603.5.1; changed to read as follows:

P2603.5.1 (305.4.1) Sewer depth. ~~*Building sewers* that connect to private sewage disposal systems shall be a minimum of [number] inches (mm) below finished *grade* at the point of septic tank connection.~~ *Building sewers* shall be a minimum of 12 inches (304 mm) below *grade*.

CHAPTER 27 – PLUMBING FIXTURES

IRC SECTION P2706
WASTE RECEPTORS

IRC Section P2706.1.2; changed to read as follows:

P2706.1.2 (802.4.3) Standpipes. Standpipes shall be individually trapped. Standpipes shall extend a minimum of 18 inches (457 mm) and a maximum of 42 inches (1067 mm) above the trap weir. Access shall be provided to all standpipe traps and drains for rodding.

Standpipes serving automatic clothes washers shall have their traps above the floor level. No standpipe shall be installed below the ground.

**IRC Section P2706.1.3; added to read as follows:*

P2706.1.3 (804.1) Condensate waste. When the condensate waste from air conditioning coils discharges by direct connection to a lavatory tailpiece or to an approved accessible inlet on a bathtub overflow, the connection shall be located in the area controlled by the same person controlling the air-conditioned space.

IRC SECTION P2709
SHOWER RECEPTORS

**IRC Section P2709.2 (421.5.2); change the second paragraph to read as follows:*

The lining material shall extend not less than ~~2~~ 3 inches ~~(51 mm)~~ (76 mm) beyond or around the rough jambs and not less than ~~2~~ 3 inches ~~(51 mm)~~ (76 mm) above finish thresholds and shall extend outward over the threshold, when present, and fastened to the outside of the threshold jamb. Sheet-applied load bearing, bonded waterproof membranes shall be applied in accordance with the manufacturer's installation instructions.

IRC SECTION 2724
SPECIALTY TEMPERATURE CONTROL DEVICES AND VALVES

**IRC Section P2724.1 (501.8); add a sentence at the end to read as follows:*

Temperature controls of a water heater shall not be used as the temperature control for tempered water.

CHAPTER 28 – WATER HEATERS

IRC SECTION P2801
GENERAL

** Section P2801; change to read as follows:*

P2801.6 Required pan. Where a storage tank-type water heater or a hot water storage tank is installed in a location where water leakage from the tank will cause damage, the tank shall be installed in a pan constructed of one of the following:

1. Galvanized steel or aluminum of not less than 0.0236 inch (0.6010 mm) in thickness.
2. Plastic not less than 0.036 inch (0.9 mm) in thickness.
3. Other *approved* materials.

~~A plastic pan beneath a gas-fired water heater shall be constructed of material having a flame spread index of 25 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E84 or UL 723~~.

IRC SECTION P2804
RELIEF VALVES

**IRC Section P2804.6.1; changed to read as follows:*

P2804.6.1 (504.6) Requirements for discharge piping. The discharge piping serving a pressure-relief valve, temperature relief valve or combination valve shall:

1. Not be directly connected to the drainage system.
2. When the drain pipe is run exposed in an area outside of the room where the water heater is located, in a manner that would make it subject to damage, the drain shall discharge through an *air gap* located in the same room as the water heater.
3. Not be smaller than the diameter of the outlet of the valve served and shall discharge full size to the point of disposal ~~*air gap*~~.
4. Serve a single relief device and shall not connect to piping serving any other relief device or equipment.

   Exception: Multiple relief devices of a single tenant may be installed to a single T & P discharge piping system when *approved* by the code official and permitted by the manufacture's installation instructions and installed with those instructions. Relief devices of multiple tenants may only share the same discharge system when *approved* by the code official and the discharge point is in a common area under the building owner's control.

5. Discharge to the floor drain, ~~to the pan serving the water heater or storage tank~~, to an indirect waste receptor or to the outdoors. The point of disposal shall not be in another tenant area. Where discharging to the outdoors in areas subject to freezing, discharge piping shall be first piped to an indirect waste receptor through an *air gap* located in a conditioned area. The discharge pipe shall not discharge into the pan required in Section P2801.5.

   Exception: When a water heater retrofit or replacement occurs on a slab

foundation and the line cannot be discharged to an approved location the T&P discharge line can be piped to the water heater pan provided with all of the following:

1. An approved mechanical device is installed that will shut off the water supply to the water heater when water is detected inside the pan;
2. A device is installed that will sound an audible alarm when water is detected inside the pan to alert the occupants that a leak has occurred.

6. Discharge in a manner that does not cause personal injury or structural damage.
7. Discharge to a termination point that is readily observable by the building occupants.
8. Not be trapped.
9. Be installed so as to flow by gravity.
10. Not terminate more than 6 inches (152 mm) above the floor drain or waste receptor. When discharging outside the building, the point of discharge shall be with the end of the pipe not more than two (2) feet (610 mm) nor less than six (6) inches (152 mm) above the ground or the floor level of the area receiving the discharge and pointing downward.
11. Not have a threaded connection at the end of the piping.
12. Not have valves or tee fittings.
13. Be constructed of those materials listed in Section P2904.5 or materials tested, rated and *approved* for such use in accordance with ASME A112.4.1.
14. Be one nominal size larger than the size of the relief-valve outlet, where the relief-valve discharge piping is constructed of PEX or PE-RT tubing. The outlet end of such tubing shall be fastened in place.

CHAPTER 29 – WATER SUPPLY AND DISTRIBUTION

IRC SECTION P2902
PROTECTION OF POTABLE WATER SUPPLY

**IRC Section P2902.3; changed to read as follows:*

P2902.3 (608.1) Backflow protection. A means of protection against backflow shall be provided in accordance with applicable local regulations and Sections P2902.3.1 through P2902.3.7. Backflow prevention applications shall conform to Table P2902.3, except as specifically stated in Sections P2902.4 through P2902.5.5.

**IRC Section P2902.5.3; changed to read as follows:*

P2902.5.3 (608.17.5) Lawn Irrigation systems. The potable water supply to lawn irrigation systems shall be protected against backflow by an atmospheric vacuum breaker, a pressure vacuum-breaker, a double-check assembly or a reduced pressure principle backflow prevention assembly. Valves shall . . . *{remainder of section unchanged}* . . . backflow preventer.

IRC SECTION P2903
WATER SUPPLY SYSTEM

**IRC Section P2903.2.1; added to read as follows:*

P2903.2.1 (604.4.1) State maximum flow rate. Where the State mandated maximum flow rate is more restrictive than those of this section, the State flow rate shall take precedence.

**IRC Section P2903.9.2; change to read as follows:*

P2903.9.2 (606.1) Water heater or hot water storage tank valve. A *readily accessible* full-open valve shall be installed in the cold-water supply pipe to each water heater or hot water storage tank at or near the water heater or hot water storage tank. Access to the valve shall be on the same floor, located near the equipment and only serving the hot water storage tank or water heater. The valve shall not interfere or cause a disruption of the cold water supply to the remainder of the cold water system.

CHAPTER 30 – SANITARY DRAINAGE

IRC SECTION P3001
GENERAL

**IRC Section P3001.4; added to read as follows:*

P3001.4 (701.9) Abandoned building sewers and private disposal systems. All abandoned building sewers and private sewer disposal systems shall be plugged or capped in an approved manner. All abandoned treatment tanks and seepage pits shall have the contents pumped and discarded in an approved manner. The top or entire tank shall be removed and the remaining portion of the tank or excavation shall be filled immediately after connection to a public sewer system or after abandonment of a private sewage disposal system. The permittee shall be responsible for the filling of the tank.

**Section P3003.9; change to read as follows:*

P3003.9.2 Solvent cementing. Joint surfaces shall be clean and free from moisture. A purple primer that conforms to ASTM F 656 shall be applied. Solvent cement not purple in color and conforming to ASTM D 2564, CSA B137.3, CSA B181.2 or CSA B182.1 shall be applied to all joint surfaces. The joint shall be made while the cement is wet and shall be in accordance with ASTM D 2855. Solvent cement joints shall be permitted above or below ground.

~~**Exception:** A primer is not required where both of the following conditions apply:~~

1. ~~The solvent cement used is third-party certified as conforming to ASTM D 2564~~
2. ~~The solvent cement is used only for joining PVC drain, waste, and vent pipe and fittings in not pressure applications in sizes up to and including 4 inches (102mm) in diameter~~

IRC TABLE P3005.4.1
MAXIMUM FIXTURE UNITS ALLOWED TO BE CONNECTED TO BRANCHES AND STACKS

**IRC Table P3005.4.1 (710.1(1)); add a footnote "c" for 3" diameter pipe to read as follows:*

[c]No more than three (3) water closets shall be permitted on any 3 inch diameter horizontal branch or drain.

IRC TABLE P3005.4.2
MAXIMUM NUMBER OF FIXTURE UNITS ALLOWED TO BE CONNECTED TO THE BUILDING DRAIN, BUILDING DRAIN BRANCHES OR THE BUILDING SEWER

**IRC Table P3005.4.2 (710.1(2)); add a footnote "c" for 3" diameter pipe to read as follows:*

[c]No more than three (3) water closets shall be permitted on any 3 inch diameter horizontal branch or drain.

CHAPTER 31 – VENTS

IRC SECTION P3103
VENT TERMINALS

**IRC Section P3103.1; changed to read as follows:*

P3103.1 (903.1.1) Roof extension. Open vent pipes that extend through a roof shall be terminated at least 6 inches (152 mm) above the roof ~~or 6 inches (152 mm) above the anticipated snow accumulation, whichever is greater~~. Where the roof is to be used for any purpose other than weather protection or equipment and appliance maintenance ~~assembly, as a promenade, observation deck or sunbathing deck or for similar purposes~~, open vent pipes shall terminate not less than 7 feet (2134 mm) above the roof.

IRC SECTION P3111
COMBINATION WASTE AND VENT SYSTEM

**IRC Section P3111.1; changed to read as follows:*

P3111.1 (915.1) Type of fixture. A combination waste and vent system shall not serve fixtures other than floor drains, standpipes, sinks and lavatories and indirect waste receptors. A combination waste and vent system shall not receive the discharge of a food waste grinder.

Part VIII - Electrical Code

IRC CHAPTER 33 THROUGH 43

**IRC Chapters 33 through 43; delete and replace with the following:*

The Electrical Code, as adopted elsewhere, shall serve as the Electrical provisions of this code. All references to NFPA 70 shall mean the Electrical Code as adopted.

Appendix

IRC APPENDIX K

**IRC Appendix K; added to read as follows:*

APPENDIX K

SOUND INSULATION REQUIREMENTS FOR NOISE SENSITIVE USES NEAR AIRPORTS

SECTION AK101 GENERAL

AK101.1 Scope. The regulations and requirements shall apply to all new residential buildings and new noise-sensitive non-residential buildings, as defined herein, that are located wholly or partially within the boundaries of the 65 DNL or greater noise contours as designated in Figure AK101.1(1).

The term "new" shall apply to new detached buildings built after the effective date of this ordinance, and shall include later additions or modifications to those same buildings. The term shall also include a Change of Occupancy in existing buildings from a non-protected occupancy to one of the protected occupancies listed herein.

Buildings in existence prior to the effective date, and additions to or modifications of those same buildings, shall not be required to comply, except when a Change of Occupancy from a non-protected occupancy to one of the protected uses is involved.

SECTION AK102 DEFINITIONS

AK102.1 General. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

Aircraft noise – is generally expressed in terms of its A-weighted sound level, in units called "decibels." Strictly speaking, the decibel unit should be abbreviated only by "dB"; however, for clarity "dBA" and "dB(A)" are often used to highlight the fact that the sound level measurement has been A-weighted.

Noise exposure – in areas around airports is expressed in terms of the Day-Night Average Sound Level, which is abbreviated by "DNL" in text and "L_{dn}" in equations.

NOISE-SENSITIVE NON-RESIDENTIAL BUILDINGS –

1. Nursing homes and hospitals, generally classified as Group I; and
2. Child day care centers, Adult day care centers and schools, generally classified as Group E and Group I-4.

RESIDENTIAL STRUCTURES: Single-family, Two-family, Townhouse, Multi-family, and Assisted Living uses, generally classified as Group R, whether in a single occupancy or mixed occupancy.

Sound insulation properties – of building construction materials are described by Sound Transmission Loss (TL) or Sound Transmission Class (STC). The higher the TL or STC value, the less sound will be transmitted through the building material.

SECTION AK103
PURPOSE

AK103.1 General. All buildings and structures with protective uses, as applicable under this chapter, shall be required to have minimum sound insulation standards and requirements to protect the persons within designated noise sensitive buildings from excessive exterior noise through regulation of design, construction and modification of such buildings. After proper sound insulation measures are taken, the interior sound level, attributable to exterior sources, shall not exceed 45 dB.

With the request for a building permit application, or Change of Use permit application, submitted plans shall show evidence of compliance with the sound insulation requirements. Compliance shall consist of submittal of an acoustical analysis report as follows:

1. In accordance with the prescriptive requirements of Section AK104 or the default ratings of Section AK105; or
2. Any qualified design prepared under by a person experienced in the field of acoustical engineering or a registered architect.

SECTION AK104

BUILDING REQUIREMENTS

AK104.1 General. Compliance with the following prescriptive provisions shall be deemed to be in compliance with this chapter.

AK104.2 Building requirements for construction in the 65 dB zone.

1. **Exterior Walls.**
   Walls that form the exterior envelope may be as listed below and shall be constructed as follows:

   a. Wood walls with studs at least 4 inches in nominal depth. Exterior finish shall be stucco, minimum 7/8-inch thickness, brick veneer, masonry, or any siding material allowed by this code. Wood, metal or cementitious fiber siding shall be installed over ½-inch solid sheathing.

      Wall insulation shall be at least R-13 glass fiber, or mineral wool or equal and shall be installed continuously throughout the stud space. Foam insulation, as permitted by this code, shall be accepted provided it solidifies to a spongy state and not solid or rigid.

      Interior wall finish shall be at least ½" gypsum wallboard

   b. Masonry or concrete load bearing walls. Masonry walls with a surface weight of less than 40 pounds per square foot will require an interior supporting studwall that is finished as required by Item a above.

   c. Or, it is permitted to use any wall designated in Section AK105 with a default STC value of 25* or greater.

2. **Exterior Windows**
   Windows in the exterior envelope shall be constructed as follows:

   a. All openable windows in the exterior walls shall have a laboratory sound transmission class rating of at least STC 30 dB and shall have air infiltration rate of no more than 0.5 cubic feet per minute when tested according to ASTM E-283; or, shall be double thermopane windows meeting the requirements of the Energy Code.
   b. All fixed windows in the exterior walls shall be at least ¼-inch thick and shall be set in non-hardening glazing materials; or, shall be double thermopane windows meeting the requirements of the Energy Code.
   c. Or, it is permitted to use any window designated in Section AK105 with a default STC value of 25* or greater.
   d. The total area of glazing in rooms used for sleeping shall not exceed 20 percent of the floor area.

3. Exterior Doors

a. Exterior hinged doors shall be as follows:
   1. a door and edge seal assembly that has a laboratory sound transmission class rating of at least STC 30 dB; or
   2. a door, other than a hollow core wood door, that complies with the Energy Code; or,
   3. any door installed with a storm door; or,
   4. doors installed as part of a vestibule.

b. Sliding glass doors shall have glass that has a laboratory sound transmission class rating of at least STC 30 dB; or, shall be a sliding glass door that complies with the Energy Code.

c. Access doors from a garage to a room within a dwelling shall have a laboratory sound transmission rating of at least STC 30 dB; or, shall comply with the Energy Code as a door in the exterior envelope.

d. Or, it is permitted to use any door designated in Section AK105 with a default STC value of 25* or greater.

i. View windows in doors and sidelights shall comply with item 2 above, unless used in a door as listed in 3a above.

4. Roof/Ceiling Construction

a. Roof rafters shall have a minimum slope of 4:12 and shall be covered on their top surface with ½-inch solid sheathing and any roof covering allowed by this code. An accessible attic space shall be provided above rooms on the uppermost level of Group R buildings.

b. Commercial type flat roofs are permitted if insulated as required by the Energy Code and a separate lay-in ceiling is added below with an airspace between the two.

c. Cathedral ceilings are discouraged but, if installed, must have enough space to install the insulation of Item d below, with a minimum of 6" air space between the insulation and the roof deck.

d. Attic insulation shall be batt or blown-in glass fiber or mineral wool with a minimum R-30 rating applied between the ceiling joists.

e. Attic ventilation, when installed, shall be:
   1. Gable vents or other attic vents that penetrate the attic enclosure shall be fitted with a ½" plywood panel, with 1" semi-rigid insulation attached to the surface facing the vent, so that the panel is at least six inches larger than the vent opening on all sides and is attached to prevent direct line-of-site perpendicular to the vent. The new panel shall also be positioned so that the amount of ventilation is not reduced. Or,
   2. Eave vents that are located under the roof overhang.

f. Ceilings shall be finished with gypsum board or plaster that is at least 5/8-inch thick; or,

   ½" gypsum board on resilient channels (RC) installed 16" o.c. perpendicular to the joists. Gypsum screws into the RC shall not be long enough to penetrate the wood stud by more than ¼" if occurring over the stud location;

or,
a lay-in ceiling with an airspace.

g. Skylights shall penetrate the ceiling by means of a completely enclosed light well that extends from the roof opening to the ceiling opening. A secondary openable glazing panel shall be mounted at the ceiling line and shall be glazed with at least 3/16-inch plastic, tempered or laminated glass. The weather-side skylight shall be any type that is permitted by this code. The total size of skylights shall be no more than 20 percent of the roof area of the room.

5. Floors

The floor of the lowest occupied rooms shall be slab on fill, below grade or over a fully enclosed basement or crawlspace. All door and window openings in the fully enclosed basement shall be tightly fitted. All crawlspace vents must be fitted with a ½" plywood panel, with 1" semi-rigid insulation attached to the surface facing the vent, so that the panel is at least six inches larger than the vent opening on all sides and is attached to prevent direct line-of-site perpendicular to the vent. The new panel shall also be positioned so that the amount of ventilation is not reduced.

6. Ventilation

a. A ventilation system shall be provided that will provide at least the minimum air circulation and fresh air supply requirements of the Mechanical Code, in each room without opening any windows, door or other opening to the exterior. Openable windows or doors will not be counted for compliance with the fresh air provisions. Fresh air must be brought in through the HVAC system.
b. Window and/or through-the-wall ventilation or air-conditioning units shall not be used.
c. All vent ducts connecting the interior space to the outdoors shall contain at least a ten-foot length of internal sound-absorbing duct lining. Each duct shall be provided with a ninety-degree (right angle) bend in the duct such that there is no direct line-of-sight through the duct from the venting cross-section to the room-opening cross-section. Residential bathroom vents discharging at an eave vent need only to have two ninety-degree (right angle) bends.
d. Kitchen cooktop vent hoods shall be the non-ducted recirculating type with no ducted connection to the exterior.

7. Fireplaces

Each fireplace constructed of masonry units shall be fitted with a spark arrestor, a damper as required by code and shall have glass doors across the front of the firebox.

8. Wall and Ceiling Openings

Openings in the exterior that degrades its ability to achieve an interior rating of 45 dB or less when all doors and windows are closed are prohibited. Any access panels, pet doors, mail delivery drops, air conditioning, or other openings must be designed to maintain the 45 dB or less standard in the room to which they provide access.

At the penetration of exterior walls by pipes, ducts, or conduits, the space between the wall and pipes, ducts, or conduits shall be caulked at the pipe duct or conduit or filled with mortar to the wall.

*STC ratings may overstate the actual attenuation provided by as much as 3 dB, therefore, 25 STC rating in lieu of 20 is mandated.

AK104.3 Building requirements for construction in the 70 dB zone.

1. **Exterior Walls**
   Walls that form the exterior envelope may be as listed below and shall be constructed as follows:

   a. Wood walls with studs at least 4 inches in nominal depth. Exterior finish shall be stucco, minimum 7/8-inch thickness, brick veneer, masonry, or any siding material allowed by this code. Wood, metal or cementitious fiber siding shall be installed over ½-inch solid sheathing.

      Wall insulation shall be at least R-13 glass fiber, or mineral wool or equal and shall be installed continuously throughout the stud space. Foam insulation, as permitted by this code, shall be accepted provided it solidifies to a spongy state and not solid or rigid.

      Interior wall finish shall be at least 5/8-inch gypsum wallboard or plaster;
      or,
      ½" gypsum wallboard installed on resilient channels (RC) installed 16" o.c. perpendicular to the studs. Gypsum screws into the RC shall not be long enough to penetrate the wood stud by more than ¼" if occurring over the stud location.

   b. Masonry or concrete load bearing walls. Masonry walls with a surface weight of less than 40 pounds per square foot will require an interior supporting studwall that is finished as required by Item a above.

   c. Or, it is permitted to use any wall designated in Section AK105 with a default STC value of 30* or greater. When using door/window openings with a default STC value of less than 30 STC but not less than 25 STC, the STC of the wall shall be downrated by 20%.

2. **Exterior Windows**
   Windows in the exterior envelope shall be constructed as follows:
   a. All openable windows in the exterior walls shall have a laboratory sound transmission class rating of at least STC 35 dB and shall have air infiltration rate of no more than 0.5 cubic feet per minute when tested according to ASTM E-283.
   b. All fixed windows in the exterior walls of rooms shall:

1. Have a laboratory sound transmission class rating of at least STC 35 db, or
2. Be 5/8-inch laminated glass with a laboratory sound transmission class rating of at least STC 35 db and shall be set in non-hardening glazing materials, or
3. Be glass block at least 3-1/2 inches thick.

c. Or, it is permitted to use any window designated in Section AK105 with a default STC value of 30* or greater.
d. The total area of glazing in rooms used for sleeping shall not exceed 20 percent of the floor area.

3. Exterior Doors

a. Exterior hinged doors shall be as follows:
   1. a door and edge seal assembly that has a laboratory sound transmission class rating of at least STC 35 dB; or
   2. a door, other than a hollow core wood door, that complies with the Energy Code and installed with a storm door; or,
   3. doors installed as part of a vestibule.
b. Sliding glass doors shall have glass that has a laboratory sound transmission class rating of at least STC 35 dB.
c. Access doors from a garage to a room within a dwelling shall have a laboratory sound transmission rating of at least STC 30 dB; or, shall comply with the Energy Code as a door in the exterior envelope.
d. Or, it is permitted to use any door designated in Section AK105 with a default STC value of 30* or greater.
e. View windows in doors and sidelights shall comply with item 2 above, unless used in a door as listed in 3a above.

4. Roof/Ceiling Construction

a. Roof rafters shall have a minimum slope of 4:12 and shall be covered on their top surface with ½-inch solid sheathing and any roof covering allowed by this code. An accessible attic space shall be provided above rooms on the uppermost level of Group R buildings.
a. Commercial type flat roofs are permitted if insulated as required by the Energy Code and a separate lay-in ceiling is added below with an airspace between the two.
b. Cathedral ceilings are discouraged but, if installed, must have ¾" solid decking above, enough space to install the insulation of Item d below, with a minimum of 6" air space between the insulation and the roof deck.
c. Attic insulation shall be batt or blown-in glass fiber or mineral wool with a minimum R-30 rating applied between the ceiling joists.
e. Attic ventilation, when installed, shall be:
   1. Gable vents or other attic vents that penetrate the attic enclosure shall be fitted with a ½" plywood panel, with 1" semi-rigid insulation attached to the surface facing the vent, so that the panel is at least six inches larger than the vent opening on all sides and is attached to prevent direct line-of-site perpendicular to the vent. The new panel shall also be positioned so that the amount of ventilation is not reduced. Or,
   2. Eave vents that are located under the roof overhang.

f. Ceilings shall be finished with gypsum board or plaster that is at least 5/8-inch thick. Ceiling materials shall be mounted on resilient channels;
or,
a lay-in ceiling with an airspace.

g. Skylights shall penetrate the ceiling by means of a completely enclosed light well that extends from the roof opening to the ceiling opening. A secondary openable glazing panel shall be mounted at the ceiling line or at a point that provides at least a 4-inch space between the skylight glazing and the secondary glazing and shall be glazed with at least 3/16-inch plastic or laminated glass. The weather-side skylight shall be any type that is permitted by this code. The total size of skylights shall be no more than 20 percent of the roof area of the room.

5. Floors

The floor of the lowest occupied rooms shall be slab on fill, below grade or over a fully enclosed basement or crawlspace. All door and window openings in the fully enclosed basement shall be tightly fitted. All crawlspace vents must be fitted with a ½" plywood panel, with 1" semi-rigid insulation attached to the surface facing the vent, so that the panel is at least six inches larger than the vent opening on all sides and is attached to prevent direct line-of-site perpendicular to the vent. The new panel shall also be positioned so that the amount of ventilation is not reduced.

6. Ventilation

a. A ventilation system shall be provided that will provide at least the minimum air circulation and fresh air supply requirements of the Mechanical Code, in each room without opening any windows, door or other opening to the exterior. Openable windows or doors will not be counted for compliance with the fresh air provisions. Fresh air must be brought in through the HVAC system.

b. Window and/or through-the-wall ventilation or air-conditioning units shall not be used.

c. All vent ducts connecting the interior space to the outdoors shall contain at least a ten-foot length of internal sound-absorbing duct lining. Each duct shall be provided with a ninety-degree (right angle) bend in the duct such that there is no direct line-of-sight through the duct from the venting cross-section to the room-opening cross-section. Residential bathroom vents discharging at an eave vent need only to have two ninety-degree (right angle) bends.

d. Kitchen cooktop vent hoods shall be the non-ducted recirculating type with no ducted connection to the exterior.

7. Fireplaces

Each fireplace constructed of masonry units shall be fitted with a spark arrestor, a damper as required by code and shall have glass doors across the front of the firebox.

8. Wall and Ceiling Openings

Openings in the exterior that degrades its ability to achieve an interior rating of 45 dB or less when all doors and windows are closed are prohibited. Any access panels, pet doors,

mail delivery drops, air conditioning, or other openings must be designed to maintain the 45 dB or less standard in the room to which they provide access.

At the penetration of exterior walls by pipes, ducts, or conduits, the space between the wall and pipes, ducts, or conduits shall be caulked at the pipe duct or conduit or filled with mortar to the wall.

*STC ratings may overstate the actual attenuation provided by as much as 3 dB, therefore, 30 STC rating in lieu of 25 is mandated.

AK104.4 Building requirements for construction in the 75 dB or greater areas.

1. **Exterior Walls**
   Walls that form the exterior envelope may be as listed below and shall be constructed as follows:

   a. Wood walls with studs at least 4 inches in nominal depth. Exterior finish shall be stucco, minimum 7/8-inch thickness, brick veneer, masonry, or any siding material allowed by this code. Wood, metal or cementitious fiber siding shall be installed over 3/4-inch solid sheathing.

      Wall insulation shall be at least R-13 glass fiber, or mineral wool or equal and shall be installed continuously throughout the stud space. Foam insulation, as permitted by this code, shall be accepted provided it solidifies to a spongy state and not solid or rigid.

      Interior wall finish shall be at least 5/8-inch gypsum wallboard installed on resilient channels (RC) installed 16" o.c. perpendicular to the studs. Gypsum screws into the RC shall not be long enough to penetrate the wood stud by more than ¼" if occurring over the stud location.

   b. Masonry or concrete load bearing walls. Masonry walls with a surface weight of less than 40 pounds per square foot will require an interior supporting studwall that is finished as required by Item a above.

   c. Or, it is permitted to use any wall designated in Section AK105 with a default STC value of 35* or greater. When using door/window openings with a default STC value of less than 35 STC but not less than 30 STC, the STC of the wall shall be downrated by 20%.

2. **Exterior Windows**
   Windows in the exterior envelope shall be constructed as follows:

a. All openable windows in the exterior walls shall have a laboratory sound transmission class rating of at least STC 40 dB and shall have air infiltration rate of no more than 0.5 cubic feet per minute when tested according to ASTM E-283.
b. All fixed windows in the exterior walls of rooms shall:
    1. Have a laboratory sound transmission class rating of at least STC 40 db, or
    2. Be 5/8-inch laminated glass with a laboratory sound transmission class rating of at least STC 40 db and shall be set in non-hardening glazing materials, or
    3. Be glass block at least 3-1/2 inches thick.
c. Or, it is permitted to use any window designated in Section AK105 with a default STC value of 35* or greater.
d. The total area of windows and doors in rooms used for sleeping shall not exceed 20 percent of the floor area.

3. Exterior Doors

a. Exterior hinged doors shall be as follows:
    1. a door and edge seal assembly that has a laboratory sound transmission class rating of at least STC 40 dB; or
    2. a solid-core wood or insulated metal door at least one (1) inch thick separated by an airspace of at least four (4) inches from another door, which can be a storm door. Both doors shall be tightly fitted and weather-stripped; or,
    3. doors installed as part of a vestibule.
b. Sliding glass doors shall have glass that has a laboratory sound transmission class rating of at least STC 40 dB;
    or,
    a double sliding glass door, separated by a minimum four-inch airspace. Each door shall comply with the air leakage rate of the Energy Code. Glass shall be at least three-sixteenths (3/16) inch thick but not equal in thickness between the two doors, and tempered or laminated.
c. Access doors from a garage to a room within a dwelling shall have a laboratory sound transmission rating of at least STC 30 dB; or, shall comply with the Energy Code as a door in the exterior envelope.
d. Or, it is permitted to use any door designated in Section AK105 with a default STC value of 35* or greater.
e. View windows in doors and sidelights shall comply with item 2 above, unless used in a door as listed in 3a above.
f. The joint between the wall opening and the door frame shall be continuously filled with glass fiber insulation and the exterior cover trim shall be continuously caulked to seal the joint.

4. Roof/Ceiling Construction

a. Roof rafters shall have a minimum slope of 4:12 and shall be covered on their top surface with ½-inch solid sheathing and any roof covering allowed by this code. An accessible attic space shall be provided above rooms on the uppermost level of Group R buildings.

b. Commercial type flat roofs are permitted if insulated as required by the Energy Code and a separate lay-in ceiling is added below with an airspace between the two.
c. Cathedral ceilings are discouraged but, if installed, must have 1" solid decking above, have enough space to install the insulation of Item d below, with a minimum of 6" air space between the insulation and the roof deck. Structural information shall be provided confirming adequate support of the decking.
d. Attic insulation shall be batt or blown-in glass fiber or mineral wool with a minimum R-30 rating applied between the ceiling joists.
e. Attic ventilation, when installed, shall be:
    1. Gable vents or other attic vents that penetrate the attic enclosure shall be fitted with a ½" plywood panel, with 1" semi-rigid insulation attached to the surface facing the vent, so that the panel is at least six inches larger than the vent opening on all sides and is attached to prevent direct line-of-site perpendicular to the vent. The new panel shall also be positioned so that the amount of ventilation is not reduced. Or,
    2. Eave vents that are located under the roof overhang.
f. Ceilings shall be finished with gypsum board or plaster that is at least 5/8-inch thick. Ceiling materials shall be mounted on resilient channels;
    or,
    a lay-in ceiling with an airspace.
g. Skylights shall penetrate the ceiling by means of a completely enclosed light well that extends from the roof opening to the ceiling opening. A secondary openable glazing panel shall be mounted at the ceiling line or at a point that provides at least a 4-inch space between the skylight glazing and the secondary glazing and shall be glazed with at least 3/16-inch plastic or laminated glass. The weather-side skylight shall be any type that is permitted by this code. The total size of skylights shall be no more than 20 percent of the roof area of the room.

5. Floors

The floor of the lowest occupied rooms shall be slab on fill, below grade or over a fully enclosed basement or crawlspace. All door and window openings in the fully enclosed basement shall be tightly fitted. All crawlspace vents must be fitted with a ½" plywood panel, with 1" semi-rigid insulation attached to the surface facing the vent, so that the panel is at least six inches larger than the vent opening on all sides and is attached to prevent direct line-of-site perpendicular to the vent. The new panel shall also be positioned so that the amount of ventilation is not reduced.

6. Ventilation

a. A ventilation system shall be provided that will provide at least the minimum air circulation and fresh air supply requirements of the Mechanical Code, in each room without opening any windows, door or other opening to the exterior. Openable windows or doors will not be counted for compliance with the fresh air provisions. Fresh air must be brought in through the HVAC system.
b. Window and/or through-the-wall ventilation or air-conditioning units shall not be used.

c. All vent ducts connecting the interior space to the outdoors shall contain at least a ten-foot length of internal sound-absorbing duct lining. Each duct shall be provided with a ninety-degree (right angle) bend in the duct such that there is no direct line-of-sight through the duct from the venting cross-section to the room-opening cross-section. Residential bathroom vents discharging at an eave vent need only to have two ninety-degree (right angle) bends.
d. Kitchen cooktop vent hoods shall be the non-ducted recirculating type with no ducted connection to the exterior.

7. Fireplaces

Each fireplace constructed of masonry units shall be fitted with a spark arrestor, a damper as required by code and shall have glass doors across the front of the firebox.

8. Wall and Ceiling Openings

Openings in the exterior that degrades its ability to achieve an interior rating of 45 dB or less when all doors and windows are closed are prohibited. Any access panels, pet doors, mail delivery drops, air conditioning, or other openings must be designed to maintain the 45 dB or less standard in the room to which they provide access.

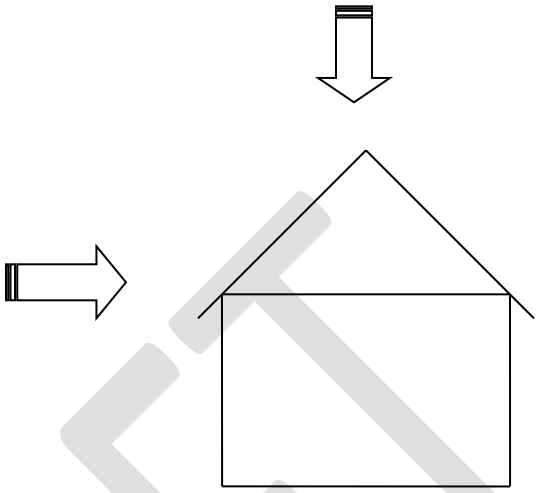
At the penetration of exterior walls by pipes, ducts, or conduits, the space between the wall and pipes, ducts, or conduits shall be caulked at the pipe duct or conduit or filled with mortar to the wall.

*STC ratings may overstate the actual attenuation provided by as much as 3 dB, therefore, 35 STC rating in lieu of 30 is mandated.

SECTION AK104.5
Sound Waves

AK104.5 General. The following are examples of compliance issues and methods.

Airplanes, jets and helicopters (aircraft) approach structures from different angles. It is not always from overhead. Low flying aircraft, as well as, take offs and landings will create sound waves that approach structures from all sides.



Sound waves are just that, waves. They travel out in a circular method from the producing object. They enter through openings and in a case like an attic, reverberate within the cavity. When the entry of such waves cannot be prevented such as with the installation of attic ventilation, dampening devices are needed to prevent the reverberation.

Figure 2-2 displays the three different major paths for noise transmission into a dwelling: air infiltration through gaps and cracks, secondary elements such as windows and doors, and primary building elements such as walls and the roof.

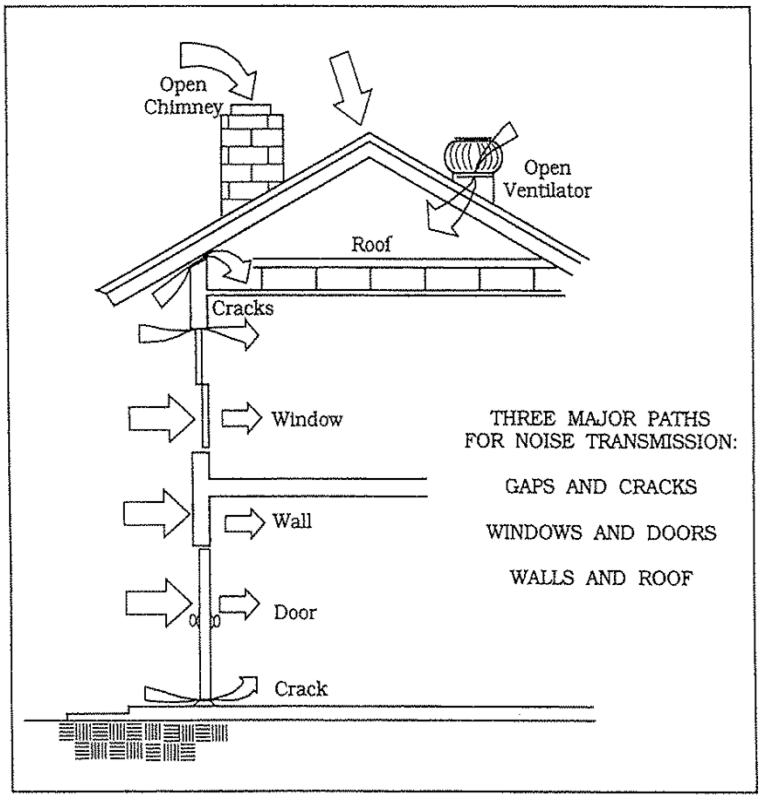


Figure 2-2. Sound Transmission Paths Into Dwelling Interiors

Low-frequency sound is most efficiently transmitted through solid structural elements such as walls, roofs, doors, and windows. High frequencies travel best through the air gaps.

Within these broad categories, different building materials have different responses based on the frequency of the incident sound and varying abilities to insulate against sound.

- Ducts to the outside, whether intake or exhaust, and all ducts in the attic or crawl space can be lined with 1-inch acoustical internal lining material, and have at least one 90-degree (right angle) elbows (turns) thereby breaking the line-of-sight to the outside as shown in Figure 3-6. It must be noted that there is concern than this fibrous acoustical lining material will affect air quality. Installing a duct sound attenuator (silencer) is an alternative to this technique; there are silencers available that do not contain fibrous lining. These measures ensure that the ventilation system is not bringing additional aircraft noise into the house.

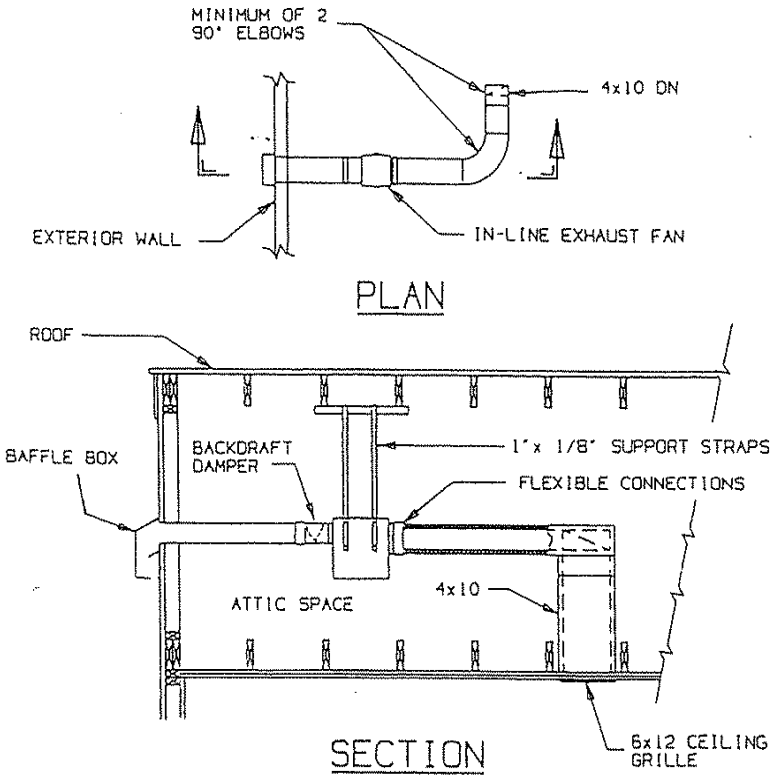


Figure 3-6. Controlling Noise Entering Through Ducts in Attic Space

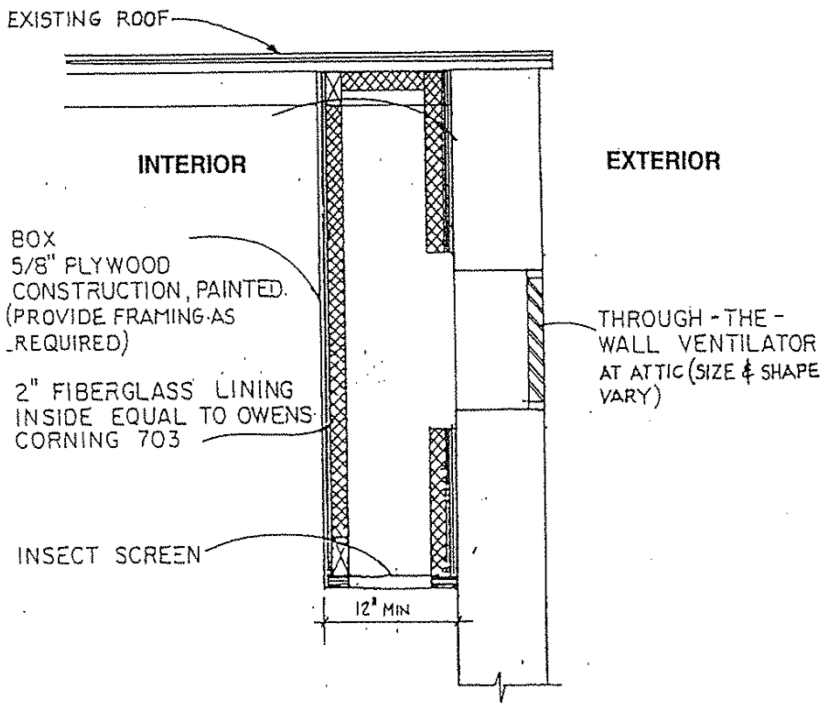
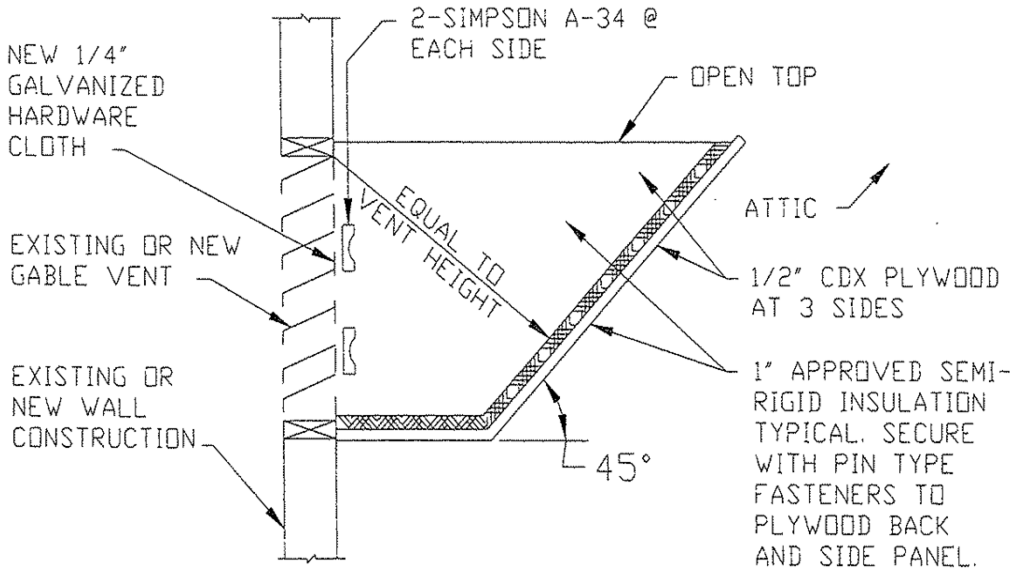


Figure 3-5. Built-in-place Gable Baffle

Attic Insulation

When considering the upgrade of thermal insulation to reduce noise levels it is important to understand what the insulation will do. Thermal insulation materials will act to absorb sound that is reverberating in the attic or in the space between flat panels. It does not prevent noise from entering the space. That is, it has no appreciable acoustic "insulating" properties but acts as an absorbent instead.

GENERIC DETAILS FOR SOUND INSULATION
PRESCRIPTIVE BUILDING STANDARDS

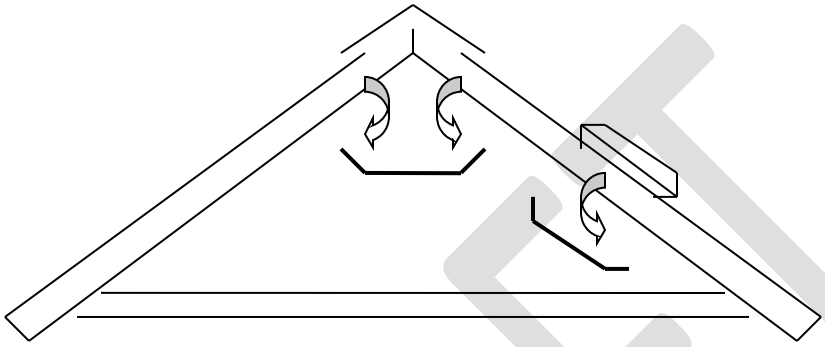


ATTIC BAFFLE FOR GABLE VENT

NOT TO SCALE

NOTE:
1. AFTER FABRICATION BAFFLE SHALL BE SECURELY ATTACHED IN POSITION.
2. NEW BAFFLE SHALL BE AT LEAST AS WIDE AS THE EXISTING VENT OPENING.

Roof vents



When using roof vents, whether a ridge vent or a single vent, a trough should be constructed and hung from the joists. The trough should be as wide as possible to cover the area of the vent. For ridge vents, it is preferable that it extend from joists to joists, leaving enough room around the edges for the required amount of venting. For single vents, the trough should be installed at the appropriate angle to match the roof slope.

The trough should be as long as the roof vent, perhaps a few inches longer, and capped on the ends.

The inside of the trough should be lined with 1" approved semi-rigid sound insulation.

SECTION AK104.6
COMPLIANCE TABLES

AK104.6 For allowable compliance tables of walls, windows, doors, roof/ceiling and floors, see the Compliance Packet, as approved by the building official.

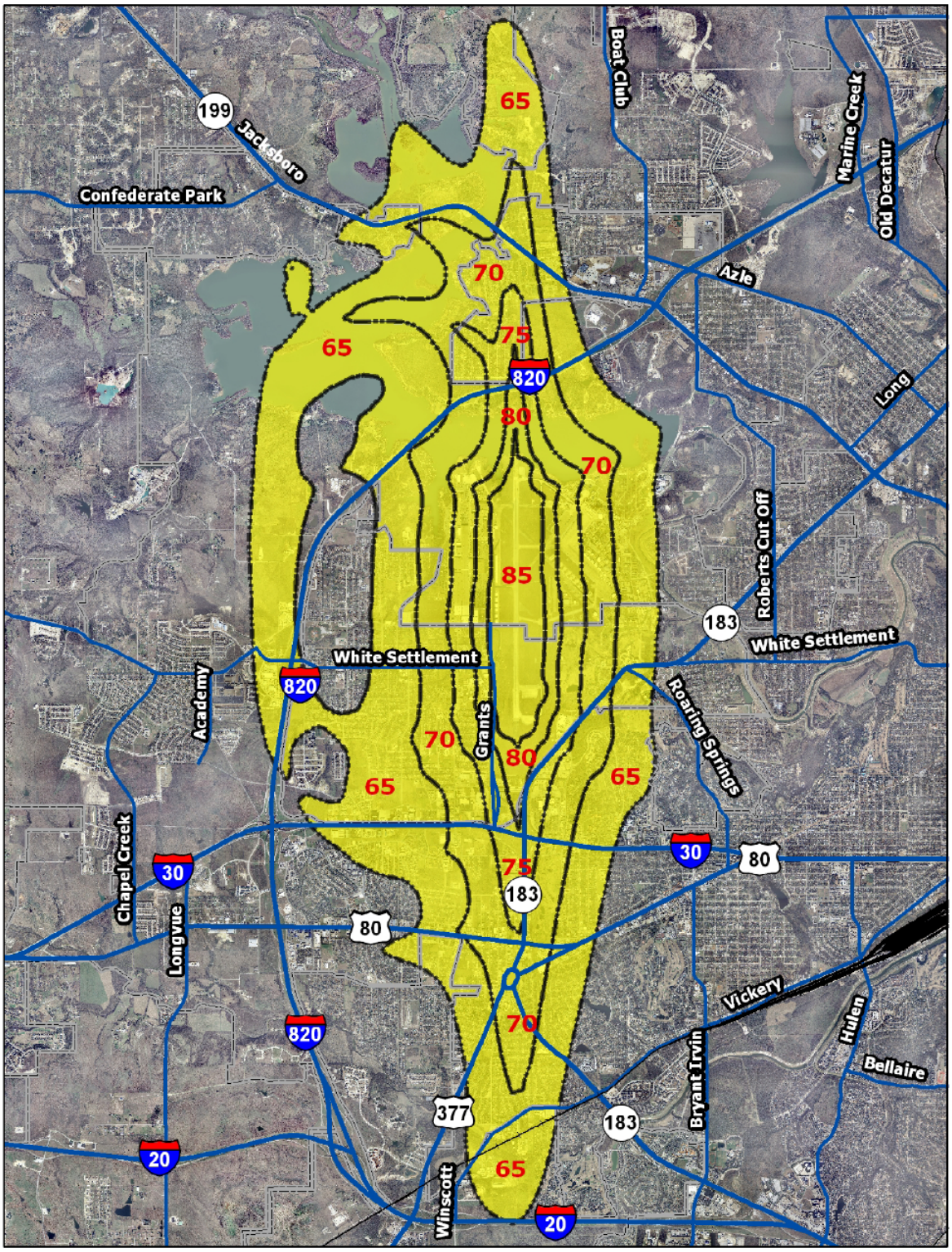


Figure AK101.1(1)

IRC APPENDIX Q

**IRC Appendix Q; Swimming Pools, Spas, and Hot Tubs is added to this code as an Appendix to read as follows:*

APPENDIX Q
SWIMMING POOLS, SPAS AND HOT TUBS

SECTION AQ101
GENERAL

AQ101.1 General. The provisions of this appendix shall control the design and construction of swimming pools, spas and hot tubs installed in or on the lot of a one- or two-family dwelling.

The provisions of this appendix may be enforced by other code enforcement divisions of this city but interpretation authority shall be retained by the building official.

AQ101.2 Pools in flood hazard areas. Pools that are located in flood hazard areas established by Table R301.2(1), including above-ground pools, on-ground pools and in-ground pools that involve placement of fill, shall comply with Section AQ101.2.1 or AQ101.2.2.

Exception: Pools located in riverine flood hazard areas which are outside of designated floodways.

AQ101.2.1 Pools located in designated floodways. Where pools are located in designated floodways, documentation shall be submitted to the building official which demonstrates that the construction of the pool will not increase the design flood elevation at any point within the jurisdiction.

AQ101.2.2 Pools located where floodways have not been designated. Where pools are located where design flood elevations are specified but floodways have not been designated, the applicant shall provide a floodway analysis that demonstrates that the proposed pool will not increase the design flood elevation more than 1 foot (305 mm) at any point within the jurisdiction.

SECTION AQ102
DEFINITIONS

AQ102.1 General. For the purposes of these requirements, the terms used shall be defined as follows and as set forth in Chapter 2.

ABOVE-GROUND/ON-GROUND POOL. See "Swimming pool."

BARRIER. A permanent fence, wall, building wall or combination thereof that completely surrounds the pool or spa and obstructs access to the pool or spa. The term "permanent" shall mea not being able to be removed, lifted or relocated without the use of a tool.

HOT TUB. See "Swimming pool."

IN-GROUND POOL. See "Swimming pool."

RESIDENTIAL. That which is situated on the premises of a detached one- or two-family dwelling, or a one-family townhouse not more than three stories in height.

SAFETY COVER. A structure, fabric or assembly, along with attendant appurtenances and anchoring mechanisms, that is temporarily place or installed over an entire pool, spa or hot tub, and secured in place afar all bathers are absent from the water.

SPA, NONPORTABLE. See "Swimming pool."

SPA, PORTABLE. A nonpermanent structure intended for recreational bathing, in which all controls, water-heating and water-circulating equipment are an integral part of the product.

SWIMMING POOL. Any structure intended for swimming or recreational bathing that contains water more than 24 inches (610 mm) deep. This includes in-ground, above-ground and on-ground swimming pools, hot tubs and spas.

SWIMMING POOL, INDOOR. A swimming pool which is totally contained within a structure and surrounded on all four sides by the walls of the enclosing structure.

SWIMMING POOL, OUTDOOR. Any swimming pool which is not an indoor pool.

SECTION AG103
SWIMMING POOLS

AQ103.1 In-ground pools. In-ground pools shall be designed and constructed in compliance with ANSI/NSPI-5.

AQ103.2 Above-ground and on-ground pools. Above-ground and on-ground pools shall be designed and constructed in compliance with ANSI/NSPI-4.

AQ103.3 Pools in flood hazard areas. In flood hazard areas established by Table R301.2(1), pools in coastal high-hazard areas shall be designed and constructed in compliance with ASCE 24.

SECTION AQ104
SPAS AND HOT TUBS.

AQ104.1 Permanently installed spas and hot tubs. Permanently installed spas and hot tubs shall be designed and constructed in compliance with ANSI/NSPI-3.

AQ104.2 Portable spas and hot tubs. Portable spas and hot tubs shall be designed and constructed in compliance with ANSI/NSPI-6.

SECTION AQ105
BARRIER REQUIREMENTS

AQ105.1 Application. The provisions of this appendix shall control the design of barriers for residential swimming pools, spas and hot tubs. These design controls are intended to provide protection against potential drownings and near-drownings by restricting access to swimming pools, spas and hot tubs.

AQ105.2 Outdoor swimming pool. An outdoor swimming pool, including an in-ground, above-ground or on-ground pool, hot tub or spa shall be surrounded by a barrier which shall comply with the following:

1. The top of the barrier shall be at least 48 inches (1219mm) above grade measured on the side of the barrier, which faces away from the swimming pool. The maximum vertical clearance between grade and the bottom of the barrier shall be 2 inches (51mm) measured on the side of the barrier, which faces away from the swimming pool. Where the top of the pool structure is above grade, such as an above-ground pool, the barrier may be at ground level, such as the pool structure, or mounted on top of the pool structure. Where the barrier is mounted on top of the pool structure, the maximum vertical clearance between the top of the pool structure and the bottom of the barrier shall be 4 inches (102mm).

2. Openings in the barrier shall not allow passage of a 4-inch-diameter (102mm) sphere.

3. Solid barriers which do not have openings, such as a masonry or stone wall, shall not contain indentations or protrusions that form handholds or footholds, except for normal construction tolerances and tooled masonry joints.

4. Where the barrier is composed of horizontal and vertical members and the distance between the tops of the horizontal members is less than 45 inches (1143mm), the horizontal members shall be located on the swimming pool side of the fence. Spacing between vertical members shall not exceed 1.75 inches (44mm) in width. Where there are decorative cutouts within vertical members, spacing within the cutouts shall not exceed 1.75 inches (44 mm) in width.

5. Where the barrier is composed of horizontal and vertical members and the distance between the tops of the horizontal members is 45 inches (1143 mm) or more, spacing between vertical members shall not exceed 4 inches (102 mm). Where there are decorative cutouts within vertical members, spacing within the cutouts shall not exceed 1.75 inches (44 mm) in width.

6. Maximum mesh size for chain link fences shall be a 2.25-inch (57 mm) square unless the fence is provided with slats fastened at the top or the bottom which reduce the openings to not more than 1.75 inches (44 mm).

7. Where the barrier is composed of diagonal members, such as a lattice fence, the maximum opening formed by the diagonal members shall not be more than 1.75 inches (44 mm).

8. Access doors or gates shall comply with the requirements of Section AQ105.2, Items 1 through 7, and shall be equipped to accommodate a locking device. Pedestrian access doors or gates shall open outward away from the pool and shall be self-closing and have a self-latching device. Doors or gates other than pedestrian access doors or gates shall have a self-latching device. Where the release mechanism of the self-latching device is located less than 54 inches (1372 mm) from the bottom of the gate, the release mechanism and openings shall comply with the following:
    8.1 The release mechanism shall be located on the pool side of the gate at least 3 inches (76 mm) below the top of the gate, and
    8.2 The gate and barrier shall have not opening greater than 0.5 inch (13 mm) within 18 inches (457 mm) of the release mechanism.

9. Where a wall of a dwelling serves a part of the barrier one of the following conditions shall apply:
    9.1 Operable windows having a sill height of less than 48 inches (1219mm) above the indoor finished floor and doors with direct access to the pool or spa through that wall shall have an alarm that produces an audible warning when the window, door or their screens are opened. The alarm shall be listed and labeled as a water hazard entrance alarm in accordance with UL 2017. In dwelling units or structures not required to be Accessible units, Type A units or Type B units, the

operable parts of the alarm deactivation switches shall be located 54 inches (1371mm) or more above the finished floor. In dwellings or structures required to be accessible unites, Type A units or Type B units, the operable parts of the alarm deactivation switches shall be located not greater than 54 inches (1372 mm) and not less than 48 inches (1219 mm) above the finished floor.

9.2 A *safety cover* that is *listed* and *labeled* in compliance with ASTM F1346 is installed for the poos or spa; or

9.3 An approved means of protection, such as self-closing doors with self-latching devices, is provided. Such means of protection shall provide a degree of protection that is not less than the protection afforded by Item 9.1 or 9.2 described above.

10. Where an above-ground pool structure is used as a barrier or where the barrier is mounted on top of the pool structure, the top of the barrier is not less than 48 inches (1219 mm) above grade for the entire perimeter of the pool, and the means of access is a ladder or steps, then:

10.1 The ladder or steps shall be capable of being secured, locked or removed to prevent access, or

10.2 The ladder or steps shall be surrounded by a barrier which meets the requirements of Section AQ105.2, Items 1 through 9. When the ladder or steps are secured, locked or removed, any opening created shall not allow the passage of a 4-inchdiameter (102 mm) sphere.

AQ105.2.1 Exceptions.

1. The side of an outdoor swimming pool facing a private golf course or other restricted access area where the erection of barriers is prohibited by deed restrictions need not have the required barrier on that side
2. In the case were the pool or spa area abuts the edge of a lake or other natural bod of water, public access is not permitted or allowed along the shoreline, and required barriers extend to and beyond the water's edge not less than 18 inches (457 mm), a barrier is not required between natural body of water shoreline and the pool or spa.
3. Natural topography that prevents direct access to the pool or spa area shall include but not be limited to mountains and natural rock formations. A natural barrier approved the *code official* shall be acceptable provided that the degree of protection is not less than the protection afforded by the requirements of AQ105.2.

AQ105.3 Indoor swimming pool. Walls surrounding an indoor swimming pool shall comply with Section AQ105.2, Item 9.

AQ105.4 Prohibited locations. Barriers shall be located so as to prohibit permanent structures, equipment or similar objects from being used to climb them.

AQ105.5 Barrier exceptions. Spas or hot tubs with a safety cover which complies with ASTM F 1346, as listed in Section AQ107, shall be exempt from the provisions of this appendix

SECTION AQ106
ENTRAPMENT PROTECTION FOR SWIMMING POOL AND SPA SUCTION OUTLETS

AQ106.1 General. Suction outlets shall be designed and installed in accordance with ANSI/APSP-7.

SECTION AQ107
ABBREVIATIONS

AQ107.1 General.

ANSI—American National Standards Institute
11 West 42nd Street
New York, NY 10036

APSP—Association of Pool and Spa Professionals
2111 Eisenhower Avenue
Alexandria, VA 22314

ASCE—American Society of Civil Engineers
1801 Alexander Bell Drive
Reston, VA 98411-0700

ASTM—ASTM International
100 Barr Harbor Drive
West Conshohocken, PA 19428

UL—Underwriters Laboratories, Inc.
333 Pfingsten Road
Northbrook, IL 60062-2096

SECTION AQ108
REFERENCED STANDARDS

AQ108.1 General.

ANSI/APSP/ICC

ANSI/ APSP/ICC-3—14	Standard for Permanently Installed Residential Spas	AQ104.1
ANSI/APSP/ICC-4—12	Standard for Above-ground/ On-ground Residential Swimming Pools	AQ103.2
ANSI/ APSP/ICC -5—11	Standard for Residential In-ground Swimming Pools	AQ103.1
ANSI/ APSP/ICC -6—13	Standard for Residential Portable Spas	AQ104.2
ANSI/APSP/ICC -7—13	Standard for Suction Entrapment Avoidance in Swimming Pools, Wading Pools, Spas, Hot Tubs and Catch Basins	AQ106.1

ASCE

ASCE/SEI-24—13	Flood-resistant Design and Construction	AQ103.3

ASTM

ASTM F 1346—91 (2010)	Performance Specification for Safety Covers and Labeling Requirements for All Covers for Swimming Pools Spas and Hot Tubs	AQ105.2, AQ105.5

UL

UL 2017—2008	Standard for General-purpose Signaling Devices and Systems—with revisions through May 2011	AQ105.2

IRC APPENDIX AX

**IRC Appendix AX; Chapter 36 of the Building Code, Docks, Piers and Boathouses is added to this code as an Appendix to read as follows:*

APPENDIX CHAPTER AX
DOCKS, PIERS AND BOATHOUSES

SECTION AX101
GENERAL

AX101 General. The provisions of this Chapter shall apply to any body of water within the corporate limits of Fort Worth that is under the jurisdiction and control of the City of Fort Worth. In the absence of other provisions, this chapter may be used on bodies of water not under the control of the City of Fort Worth.

This chapter and the "Docks, Piers and Boat House" standards, adopted elsewhere, may be more stringent than other provisions of this code and other codes.

AX101.1 Variances/Water Department Release. Lake Worth is owned by the City of Fort Worth. The Fort Worth Water Department has the charge for the safety of the water, as well as, safe usage of the water system. As such, some provisions in this chapter shall be designated as a regulation from the Water Department and will be identified as **(WD)**. Any such section identified with **(WD)** cannot be granted a variance by the Construction and Fire Prevention Board without first obtaining a release from the Director of the Water Department.

SECTION AX102
DEFINITIONS

AX102 Definitions. The following words and terms shall, for the purposes of this chapter, have the meanings shown herein.

DEAD LOAD. The permanent inert weight of materials of construction incorporated into the structure, including fixed or permanent attachments, such as bumpers, railings, winch stands, roof structures, etc.

As further defined in Chapter 16 of the Building Code, the weight of materials of construction incorporated into the building, including but not limited to walls, floors, roofs, ceilings, stairways, built-in partitions, finishes, cladding and other similarly incorporated architectural and structural items, and fixed service equipment including the weight of cranes. All dead loads are considered permanent loads.

DECKING. The surface material that forms the floor of the structure.

As further defined in Chapter 16 of the Building Code, an exterior floor supported on at least two opposing sides by an adjacent structure, and/or posts, piers or other independent supports.

DOCK, PIER, OR BOAT HOUSE (or any combination). A structure extending from the shore into the water to permit the landing and mooring of vessels. The term "dock", "pier" or "boat house" includes the anchoring system and any walkways or bridges that will attach to the structure itself.

HUNT ABSORPTION TEST. A test documenting the rate at which flotation material absorbs liquid, as well as the quantity of liquid absorbed.

LAKEFRONT PROPERTY LINE. The property line that borders the regulated water area. (For Lake Worth, "as shown on the final plat of record or survey for the property".)

LAKE WORTH MANAGEMENT OFFICE (LWMO). That group in the Water and Property Management Departments responsible for review and approval of improvements to structures, prior to permitting, at or in Lake Worth and who shall administer the requirements of those departments.

LIVE LOAD. Any moving or variable superimposed load on the structure.

As further defined in Chapter 16 of the Building Code, those loads produced by the use and occupancy of the building or other structure and do not include construction or environmental loads such as wind load, snow load, rain load, earthquake load, flood load or dead load.

LOADS. Forces or other actions that result from the weight of building materials, occupants and their possessions, environmental effect, differential movement and restrained dimensional changes. Permanent loads are those loads in which variations over time are rare or of small magnitude, such as dead loads. All other loads are variable loads.

REGISTERED PROFESSIONAL ENGINEER (RPE). A professional engineer currently registered with the State of Texas as a professional engineer.

STRUCTURAL DEAD LOAD. The weight of the structure and its ability to support itself.

STRUCTURE. When used in this Chapter shall be inclusive of entire dock, pier or boat house, including the walkway, anchoring system, cables, floats, electrical, plumbing and any other related components or materials installed in conjunction with the construction, maintenance, or use of the dock.

WALKWAY (or BRIDGE). A passage that provides access from the land or a boat dock, marina, or other floating facility.

SECTION AX103
PERMITS

AX103 Permit Required. No person shall erect, construct, enlarge, alter, or move any dock, pier, boathouse or combination to any body of water within the corporate limits of Fort Worth that is under the jurisdiction and control of the City of Fort Worth, without complying with the provisions of this chapter.

Each application for a permit, together with plans for a dock, pier, boathouse, or any combination thereof shall be submitted as specified in Chapter 1 of this code and as may be specified in other City codes.

Where such structures are constructed on Lake Worth or any body of water subject to the jurisdiction of another department of the City of Fort Worth, the additional approval of such department shall be obtained.

Submittal of a permit application is not permission to begin work. Construction is not permitted to begin until a permit is ISSUED.

SECTION AX104
USE

AX104 Use. Docks, piers and boathouses for private use shall normally be classified as a Group U Occupancy. Other occupancies may be allowed when the use is permitted by the Zoning Ordinance, together with the approval of any other appropriate department of the City of Fort Worth, and the construction complies with this code for said use.

SECTION AX105
DESIGN AND DESIGN LOADS

AX105.1 General. When designed by an RPE, the RPE shall apply the appropriate loads when doing calculations. Such factors shall include, but not be limited to:

a. Dead load
b. Live load
c. Roof load
d. Wind load and wave action; which should be considered as simultaneously applied
e. When intended to have boats attached to the structure for storage, the effects of such estimated loads, such as wind and wave, on the boat that are transferred to the structure shall also be considered.
f. When intended to have boats lifted out of the water, the effects of such estimated loads,

such as wind on the boat and dead load of the boat, that are transferred to the structure shall also be included.

g. Surface areas at and above the water line, when authorized, including walls, screens, tarps, etc.

h. Except as allowed for in Section T3605.3, flotation devices shall be designed to withstand the same dead load and live load as a fixed structure.

AX105.2 All Occupancies. Regardless of the occupancy category assigned, all structures shall comply with the following provisions:

a. Piles shall conform to Chapter 18 of the Building Code.

b. All docks, piers and boathouses shall be designed to withstand the loads as specified in Chapter 16 of the Building Code, based upon the Occupancy classification as assigned by the Building Official.

    Exception: Private residential structures, classified as a Group U, may use the design loads as specified in Section T3605.3.

c. **(WD)** Structures shall be able to withstand a minimum of two-foot high wave action at normal water levels. (For Lake Worth, up to 594 ft. above sea level.) Floating docks must be designed with anchorage footing and piers to remain in place without floating off at the high water levels (For Lake Worth, this will be 601 ft. above sea level.)

d. **(WD)** Cables and chains used in anchoring systems shall be designed with a minimum working load safety factor of 3.0 for cable and 2.0 for chains.

e. **(WD)** Walkways and bridges shall have a maximum slope under dead load of a 4:1 ratio to any direction at the lowest expected water level. (For Lake Worth, 591 ft. above sea level.)

AX105.3 Group U Occupancies. When private structures associated with residential uses are assigned a Group U Occupancy classification, the design provisions provided in Section T3605.3.1 through T3605.3.2, may be used in lieu of Chapter 16 of the Building Code.

AX105.3.1 Flotation devices shall be designed to support the dead load plus 30-pounds per square foot (PSF) live load applied to deck area.

AX105.3.2 Structural frame shall be designed to support 40 pounds per square foot (PSF) live load applied to the full surface area of the deck.

SECTION AX106
CONSTRUCTION

AX106 Dock and Pier Construction. When not designed by an RPE, the proposed design shall incorporate the following minimum provisions:

AX106.1 Piles. Wood piles shall be a minimum of six (6) inches in diameter. Metal piles shall be a minimum of three (3) inches inside diameter pipe. Such piles shall be driven to a minimum depth of twenty-four (24) inches below the top layer of silt. Such piles shall be driven in pairs, one on either side of the platform, and braced as required by section 3606.6. Such piles shall not be spaced apart more than ten (10) feet center to center.

AX106.2 Box cribs. Sets of structural columns of the same size forming a box crib may be used. Such crib shall be braced as required in Section 3606.6 and anchored as required in Section T3607.

AX106.3 Beams. Beams shall be defined as those members which connect to piles to support the stringers. All beams when of wood shall be a minimum 2-inch material.

AX106.4 Stringers. Stringers shall be defined as those members usually supporting the decking. All stringers when of wood shall be of a minimum 2-inch material.

AX106.5 Decking.

AX106.5.1 Wooden platform decking shall be of a minimum nominal 2-inch material.

AX106.5.2 Other materials, to include lightweight concrete or metal decking may be used when approved by the Building Official. Such decking shall meet the load requirements of Section T3605.

AX106.6 Bracing.

AX106.6.1 Materials. All wooden bracing shall be of a minimum nominal 2-inch x 6-inch material attached through the brace and supporting members with two (2) one half inch galvanized bolts. Steel tie rods shall be a minimum three quarter inch diameter galvanized that are fitted through drilled holes in the piles.

AX106.6.2 Bracing shall be accomplished by one or more of the following methods:

a. **Cross or "X" bracing**. Cross or "X" bracing may be used on each set of piles and box cribs. The angle of the bracing shall be between 45 and 60 degrees off horizontal. Each member of the brace shall be placed on the outward facing portion of the pile.

b. **Knee bracing.** Knee bracing may be used on each pile attached to and paralleling the platform deck. The angle of the bracing shall be between 45 and

60 degrees off horizontal.

AX106.7 Attachment of deck. Attachment of the platform deck to beams and piles shall be accomplished by attaching the beams to the piles and box cribs by a minimum of two (2) one half inch galvanized through bolts.

SECTION AX107
ANCHORAGE

AX107 Anchorage of Floatation and box crib structures. Such structures shall be anchored with solid units that will provide the following anchorage:

a. Docks and piers less than fifty (50) feet in length: An anchor on each corner that will support one-fourth of the total dead load plus one-eighth the total live load.

b. Docks and piers fifty (50) feet or more in length: Anchors at the midpoint of the piers.

c. All docks and piers shall be anchored to the shore line.

d. All anchors shall be of masonry, concrete, or steel and shall be securely fastened to the dock or pier by ~~rope,~~ cable, chain, or other approved methods.

SECTION AX108
REQUIRED WATER PROOFING

AX108.1 Wood. All wood below one (1) foot above spillway elevation on lakes (for Lake Worth, 595 feet) or below one (1) foot above the 50-year flood elevations on other bodies of water shall be treated lumber. Creosote is not allowed.

AX108.2 Metal. All metal, including bolts, lag bolts, and fasteners, shall be galvanized zinc or other approved materials.

SECTION AX109
FLOTATION MATERIAL

AX109.1 Floatation Material. All flotation units shall adequately support the dead and live loads of all beams, stringers, and platforms. Data shall be submitted to and approved by the Building Official showing that the buoyancy of such units will support the loads imposed.

Only flotation units made of materials which will not affect the water quality in any way may be used. Flotation units shall be constructed of material that has never been used in any manner for storage of toxic or hazardous material. Proof that the flotation units meet the requirements must be provided to and approved by the Building Official.

1. **(WD)** Flotation material shall be extruded polystyrene, expanded polystyrene, or a copolymer of polyethylene and polystyrene and shall have a minimum density of 0.9 pounds per cubic foot, and be of consistent quality throughout the float. Beads shall be firmly fused together, and there shall be no voids inside the encasement. Flotation material shall have a water rate absorption of less than 3.0 pounds per cubic foot over seven (7) days when tested by the Hunt Absorption Test. Other flotation material may be considered if it meets all of the requirements set forth in this chapter.

2. **(WD)** Flotation material shall be encased in solid polyethylene or a polyurethane type coating, both of which shall be watertight and have a nominal thickness of 0.125 inches.

3. **(WD)** Drums made of plastic, whether new or recycled, or metal shall not be used for encasements or floats.

4. **(WD)** Materials which are considered unacceptable for this purpose include but are not limited to standard steel 55 gallon drums, any metal which may corrode in the aqueous environment, and any material which may release toxic or hazardous material into the lake proper.

5. **(WD)** All flats shall be warranted for a minimum of eight (8) years against sinking, becoming waterlogged, cracking, peeling, fragmenting, or losing beads, and shall not be prone to damage by animals.

6. **(WD)** Floats that are punctured, exposing the foam to erosion or deterioration, shall be replaced immediately.

SECTION AX110
BOATHOUSES

AX110.1 Boathouse construction. Construction of boathouses or other structures shall meet or exceed the requirements for framing and coverage as specified in other parts of this code. When, in the opinion of the Building Official, the load of the intended use exceeds the capability of the minimum construction design specified, plans and specification may be required to be designed by a Registered Professional Engineer (RPE).

SECTION AX111
PROHIBITED USES

AX111.1 (WD) Toilet facilities. No toilet facilities of any type shall be allowed on any Structure built past the Lakefront Property Line.

AX111.2 (WD) Fuel pumping. Fuel pumping facilities exceeding 55 gallons are not allowed on structures that extend past the Lakefront Property Line.

SECTION AX112
SAFETY DEVICES

AX112.1 (WD) Photocell light. Any Structure that extends more than 100 feet from the Lakefront Property Line shall be equipped with a white photocell light of no less than 200 lumens that operates continually from dusk to dawn. Such lighting shall be provided with a cover on the top of the light to minimize light dispersion upward and toward the shore. The LWMO may require that lighting be placed on structures less than 100 feet from the shoreline when in LWMO decides it is warranted to enhance boating safety. It is the Dock owner's responsibility to ensure that all required lighting is properly maintained and operational at all times.

AX112.2 (WD) Water supply. A potable water supply can be plumbed to the first floor (lower deck) provided that backflow prevention devices are installed and inspected in accordance with 12.5, Article V, Division 3, Cross Connection Control of the City Code and the Plumbing Code as adopted by the City Council.

SECTION 3.

Section 7-63 of the Code of the City of Fort Worth (1986) is hereby amended to read as follows:

Sec. 7-63. Effect of conflict with other ordinances.

This article shall be cumulative of all provisions of ordinances of the Code of the City of Fort Worth, Texas (1986), affecting Residential Code provisions, as amended, and shall not repeal any of the provisions of such ordinances, except in those instances where provisions of such ordinances are in direct conflict with the provisions of this ordinance.

SECTION 4.

Section 7-64 of the Code of the City of Fort Worth (2015) is hereby amended to read as follows:

Sec. 7-64. Penalty for violation.

Any person, firm, or corporation violating any of the provisions of this ordinance shall be deemed guilty of a misdemeanor and upon conviction thereof shall be punishable by a fine not to exceed Two Thousand Dollars ($2,000.00) for all violations involving fire safety, or public health and sanitation and shall be fined not more than Five Hundred Dollars ($500.00) for all other violations of this ordinance. Each day or any portion thereof during which any violation of this ordinance occurs or continues shall be deemed a separate offense and upon conviction thereof shall be punishable as herein provided.

SECTION 5.

This article shall be cumulative of all provisions of ordinances of the Code of the City of Fort Worth, Texas (2015), affecting Residential Code provisions, as amended, and shall not repeal any of the provisions of such ordinances, except in those instances where provisions of such ordinances are in direct conflict with the provisions of this ordinance.

SECTION 6.

It is hereby declared to be the intention of the City Council that the sections, paragraphs, sentences, clauses, and phrases of this ordinance are severable, and, if any phrase, clause, sentence, paragraph, or section of this ordinance shall be declared void, ineffective, or unconstitutional by the valid judgment or decree of any court of competent jurisdiction, such voidness, ineffectiveness, or unconstitutionality shall not affect any of the remaining phrases, clauses, sentences, paragraphs, and sections of this ordinance, since the same would have been enacted by the City Council without the incorporation in this ordinance of any such void, ineffective, or unconstitutional phrase, clause, sentence, paragraph, or section.

SECTION 7.

Any person, firm, or corporation violating any of the provisions of this ordinance shall be deemed guilty of a misdemeanor and upon conviction thereof shall be punishable by a fine not to exceed Two Thousand Dollars ($2,000.00) for all violations involving fire safety, or public health and sanitation and shall be fined not more than Five Hundred Dollars ($500.00) for all other violations of this ordinance. Each day or any portion thereof during which any violation of this ordinance occurs or continues shall be deemed a separate offense and upon conviction thereof shall be punishable as herein provided.

SECTION 8.

All rights and remedies of the City of Fort Worth, Texas are expressly saved as to any and all violations of the previous Building Code, or any other ordinances affecting construction and fire safety, which have accrued at the time of the effective date of this ordinance: and, as to such accrued violations and all pending litigation, both civil and criminal, whether pending in court or not, under such ordinances, same shall not be affected by this ordinance but may be prosecuted until final disposition by the courts.

SECTION 9.

A copy of the 2021 International Residential Code, together with the local amendments contained in this ordinance, shall be filed in the office of the City Secretary for permanent record and inspection.

SECTION 10.

The Development Services Department of the City of Fort Worth, Texas, is hereby authorized to publish this ordinance in pamphlet form for general distribution among the public, and the operative provisions of this ordinance as so published shall be admissible in evidence in all courts without further proof than the production thereof, as provided in Chapter XXV, Section 3, of the Charter of the City of Fort Worth, Texas.

SECTION 11.

The City Secretary of the City of Fort Worth, is hereby directed to publish the caption and Sections 1, 7, 9, 11 and 12 of this ordinance for two (2) days in the official newspaper of the City of Fort Worth, Texas as authorized by Section 2, Chapter XXV of the Charter of the City of Fort Worth, Texas and by Section 52.013 (a) of the Texas Local Government Code.

SECTION 12.

This ordinance shall take effect upon April 1, 2022.

APPROVED AS TO FORM AND LEGALITY:

By: _____
Assistant City Attorney

Adopted: _____

Effective: _____