9.04 Residential Code

9.04.01. Adopted.

The City Council hereby adopts Chapters 1 through 24 and 44 plus Appendices E, H, M, Q, and S of the International Residential Code, 2018 Edition as published by the International Code Council, Inc. as the residential building code of the City for regulating the design, construction, quality of materials, erection, installation, alteration, movement, repair, equipment, use and occupancy, location, removal, and demolition of detached one- and two-family dwellings and town houses not more than three stories in height with a separate means of egress and their accessory structures, and provides for the issuance of permits and the collection of fees therefore. The minimum building standards in the 2018 edition of the International Residential Code and amendments thereto shall be applied to any building permit issued after June 30, 2018. A copy of this code shall be kept on file in the office of the Building Official.

9.04.02. Local amendments, additions, and deletions to the 2018 International Residential Code.

The following sections and subsections of the residential building code adopted in this Ordinance shall be amended, added, or deleted as follows. All other sections or subsections of the 2018 International Residential Code shall remain as originally published.

R101.1 Title. These provisions shall be known as the Residential Code for One- and Two-family Dwellings of the City of Harrisburg, and shall be cited as such and will be referred to herein as “this code”.

R101.2 Scope. The provisions of the International Residential Code for One- and Two-family Dwellings shall apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, removal and demolition of detached one- and two-family dwellings and townhouses not more than three stories above grade plane in height with a separate means of egress and their accessory structures.

Exceptions:

1. Live/work units complying with the requirements of Section 419 of the International Building Code shall be permitted to be built as one- and two-family dwellings or townhouses. Fire suppression required by Section 419.5 of the International Building Code when constructed under the International Residential Code for One- and Two-family Dwellings shall conform to Section P2904.
2. Owner-occupied lodging houses with five or fewer guestrooms shall be permitted to be constructed in accordance with the International

Residential Code for One- and Two-family Dwellings when equipped with a fire sprinkler system in accordance with Section P2904.

3. Existing buildings undergoing repair, alteration, or additions, and change of occupancy may be permitted to comply with the International Existing Building Code.

R102.7 Existing Structures. The legal occupancy of any structure existing on the date of adoption of this code shall be permitted to continue without change, except as is specifically covered in this code, the International Property Maintenance Code, or as is deemed necessary by the Building Official for the general safety and welfare of the occupants and the public.

R103.1 Enforcement agency. Building services is hereby created and the official in charge thereof shall be known as the Building Official.

R103.2 Appointment. Not adopted by the City.

R104.8 Liability. The Building Official, member of the board of appeals, or employee charged with the enforcement of this code, while acting for the City in good faith and without malice in the discharge of the duties required by this code or other pertinent law or ordinance, shall not thereby be rendered civilly or criminally liable personally and is hereby relieved from personal liability for any damage accruing to persons or property as a result of any act or by reason of an act or omission in the discharge of official duties.

R104.8.1 Legal defense. Any suit or criminal complaint instituted against an officer or employee because of an act performed by that officer or employee in the lawful discharge of duties and under the provisions of this code shall be afforded all the protection provided by the City's insurance pool and any immunities and defenses provided by other applicable state and federal law and defended by legal representative of the City until the final termination of the proceedings. The Building Official or any subordinate shall not be liable for cost in any action, suit or proceeding that is instituted in pursuance of the provisions of this code.

This code shall not be construed to relieve from or lessen the responsibility of any person owning, operating, or controlling any building or structure for any damages to persons or property caused by defects, nor shall the code enforcement agency or the City be held as assuming any such liability by reason of the inspection authorized by this code or any permits or certificates issued under this code.

R105.2 Work exempt from permit. Exemption from the permit requirements of this code shall not be deemed to grant authorization for any work to be done in any manner in violation of the provisions of this code or any other laws or ordinances of this City. Building permits shall not be required for the following:

1. Retaining walls that are not over four feet in height measured from the bottom of the footing to the top of the wall, unless supporting a surcharge.
2. Water tanks supported directly upon grade if the capacity does not exceed five thousand gallons and the ratio of height to diameter or width does not exceed two to one.
3. Walks and driveways not more than thirty inches above grade and not over any basement or story below.
4. Painting, papering, tiling, carpeting, cabinets, counter tops, and similar finish work.
5. Replacement of exterior siding or trim.
6. Replacement of doors or windows when the door or window opening remains unchanged.
7. Prefabricated swimming pools which are less than twenty-four inches deep that are installed entirely above ground.
8. Swings and other playground equipment.
9. Window awnings supported by an exterior wall which do not project more than fifty-four inches from the exterior wall and do not require additional support.
10. Dumpsters.
11. Gutters, downspouts, and storm windows.

Gas:

1. Portable heating, cooking or clothes drying appliances.
2. Replacement of any minor part that does not alter approval of equipment or make such equipment unsafe.
3. Portable-fuel-cell appliances that are not connected to a fixed piping system and are not interconnected to a power grid.

Mechanical:

1. Portable heating appliances.
2. Portable ventilation appliances.
3. Portable cooling units.
4. Steam, hot- or chilled-water piping within any heating or cooling equipment regulated by this code.
5. Replacement of any minor part that does not alter approval of equipment or make such equipment unsafe.
6. Portable evaporative coolers.
7. Self-contained refrigeration systems containing 10 pounds or less of refrigerant or that are actuated by motors of 1 horsepower (746 W) or less.
8. Portable-fuel-cell appliances that are not connected to a fixed piping system and are not interconnected to a power grid.

R106.1.5 Information for construction in areas other than flood hazard areas. For one- and two-family dwellings and town houses located in whole or in part outside of flood hazard areas as established by Table R301.2(1) and located on lots that have been platted after January 1, 2016, a site plan shall include:

1. A scaled and dimensioned plan view of the home's foundation on the lot.

2. A lot plan showing how the lot is to be drained of stormwater.

3. The elevation of the highest inundation level expected on the lot as shown on the subdivision's stormwater management plan.

4. The elevation of the proposed lowest floor other than (and above) the basement floor.

5. The elevation of the bottom of the lowest window, door, or vent opening in the home's foundation.

R106.1.6 Foundation reinforcement. Construction for detached one- and two-family dwellings and town houses shall be provided with the intended reinforcement of foundation walls referenced in Tables R404.1.1(2), R404.1.1(3), and R404.1.1(4) for reinforced masonry foundation walls; Tables R404.1.2(2), R404.1.2(3), R404.1.2(4), and R404.1.1(8) for flat concrete foundation walls; Tables 404.1.2(5) and R404.1.2(6) for waffle-grid basement walls; and Table R404.1.2(7) for screed-grid basement walls where the foundation wall exceeds the provisions for plain masonry and concrete foundation walls.

R106.3.1 Approval of construction documents. When the Building Official issues a permit, the construction documents shall be submitted and reviewed. One set of construction documents so reviewed shall be retained by the Building Official. The other set shall be returned to the Applicant, shall be kept at the site of work, and shall be open to inspection by the Building Official or his designee.

R108.2 Schedule of permit fees. On buildings, structures, gas, mechanical, or alterations requiring a permit, a fee for each permit shall be paid as required, in accordance with the fee schedule adopted by resolution by the City Council.

R108.6 Work commencing before permit issuance. Any person who commences work requiring a permit on a building, structure, gas, or mechanical system before obtaining the necessary permit(s) shall be subject to a Late Application Fee established by resolution by the City Council that shall be in

addition to the required permit fees. Legal and/or civil proceedings may also be commenced by the City.

R108.7 Plan review fees. When submittal documents for plan review are required, a plan review fee shall be paid with the building permit application. Said plan review fee shall be twenty-five percent of the building permit fee. Said plan review fees are separate fees from the permit fees specified in Section R108.1 and are in addition to the permit fees.

R109.0 General. All construction or work for which a permit is required shall be subject to inspection by the Building Official or his designee and all such construction or work shall remain accessible and exposed for inspection purposes until approved by the Building Official. In addition, certain types of construction shall have continuous inspection as specified in Section 1701 of the 2015 Edition of the International Building Code.

R109.0.1 Approval not an approval of a violation. Approval as a result of an inspection shall not be construed to be an approval of a violation of the provisions of the Harrisburg Municipal Code. Inspections do not give authority to violate or fail to follow other provisions of the Harrisburg Municipal Code.

R109.0.2 Work to remain accessible. It shall be the duty of the permit applicant to cause the work to remain accessible and exposed for inspection purposes. Neither the Building Official nor the jurisdiction shall be liable for expenses entailed in the removal or replacement of any material required to allow inspection.

R109.0.3 Survey may be required. A survey of the lot may be required by the Building Official to verify that the structure is located in accordance with the approved plans.

R109.0.4 Buildings built without inspections. Buildings or structures built without one or more required inspections, as specified by Section R109 of this Code and Chapter 17 of the International Building Code, may be classed as an unsafe building or structure and action taken as specified by Section 115 for unsafe buildings or structures of the currently adopted edition of the International Building Code. Buildings or structures wired or plumbed without required inspections, as specified by the currently adopted Electrical Code, as amended, or the currently adopted Plumbing Code, as amended, may be classed as an unsafe building or structure and action taken as specified by Section 115 for unsafe buildings or structures of the currently adopted edition of the International Building Code.

R109.1.1 Footing inspection. Inspection of the footings shall be made after poles or piers are set or trenches or basement areas are excavated

and any required forms erected and any required reinforcing steel is in place and supported prior to the placing of concrete. The footing inspection shall include excavations for thickened slabs intended for the support of bearing walls, partitions, structural supports, or equipment and special requirements for wood foundations.

R109.1.3 Floodplain inspections. For construction in flood hazard areas as established by the Flood Damage Prevention Ordinance, upon placement of the lowest floor, including basement, and prior to further vertical construction, the floodplain administrator shall require submission of documentation, prepared and sealed by a registered design professional, of the elevation of the lowest floor, including basement, required in the Flood Damage Prevention Ordinance.

R109.1.6.1 Elevation documentation. If located in a flood hazard area, the documentation of elevations required in Section R322.1.10 shall be submitted to the floodplain administrator prior to the final inspection.

R110.1 Use and occupancy. No building or structure shall be used or occupied, and no change in the existing occupancy classification of a building or structure or portion thereof shall be made until the Building Official has issued a certificate of occupancy therefor as provided herein and final inspections have been obtained from the mechanical and building inspectors of the City. Issuance of a certificate of occupancy shall not be construed as an approval of a violation of the provisions of this code or of other ordinances of the City. Certificates presuming to give authority to violate or cancel the provisions of this code or other ordinances of the City shall not be valid.

Exceptions:

1. Certificates of occupancy are not required for work exempt from permits under Section R105.2.
2. Accessory buildings or structures.

R110.6 Placards. Placards or inspection record tags placed on the job by the inspectors to indicate approval of the work inspected shall not be removed, except when authorized by the Building Official.

R112.1 Designation of Board of Appeals. In order to hear and decide appeals of orders, decisions, or determinations made by the Building Official relative to the application and interpretation of this code, the City Council hereby assumes the responsibilities of the Board of Appeals for this code. All decisions and findings of the Board shall be final and shall be rendered in writing to the appellant with a duplicate copy to the Building Official.

R112.2 Limitations on authority. An application for appeal shall be based on a claim that the true intent of this code or the rules legally adopted hereunder

have been incorrectly interpreted, the provisions of this code do not fully apply, or an equally good or better form of construction is proposed. If the appeal is based on a claim that an equally good or better form of construction was improperly denied, the appellant must submit the alternate material, design, or method of construction they are proposing. The appellant also has the burden to demonstrate to the Board that the alternative method or material that they are proposing is an equally good or better form of construction. The Board shall have no authority relative to the interpretation of the administrative provisions of this code nor shall the Board be empowered to waive the requirements of this code.

R112.3 Submission of appeals. All appeals must be submitted in writing to the Building Official within ten days of the order, decision, or determination of the Building Official that is being appealed. Once the appeal is received by the Building Official, he shall place the appeal on the City Council's next regular meeting agenda that is more than seven days (inclusive) from the date of receipt of the appeal.

R112.3.1 Appeal hearings. All hearings before the Board shall be open to the public. The appellant, the appellant's representative, the Building Official, any member of the City's staff, or any person whose interests are affected shall be given an opportunity to be heard.

SECTION R202 DEFINITIONS The definitions of accessory structure and townhouse are changed as follows:

ACCESSORY STRUCTURE. A structure not over one story in height, detached from a principal building, located on the same lot as the principal building, and customarily incidental and subordinate to the principal building, such as a detached garage or storage shed. An accessory building does not include any dwelling unit(s) or living quarters.

TOWNHOUSE. A single-family dwelling unit constructed in a group of two or more attached units, with each unit located on a separate lot, in which each unit extends from foundation to roof and with a yard or public way on at least two sides, no unit is located over another unit, and each unit is separated from any other unit by one or more vertical, unpierced, common, fire-resistant walls. Also known as single-family attached dwellings or zero lot line homes.

Table R301.2(1) Climatic and Geographic Design Criteria, is hereby amended by inserting the following information into the table:

Ground Snow Load: 40 psf and as per ASCE 705;
Wind speed: 90 mph;
Topographic Effects: no;
Special Wind Region: no;

Wind-borne Debris Zone: no;
Seismic Design Category: A;
Weathering: Severe;
Frost line depth: 42";
Termite: Slight to moderate;
Winter Design Temp: -11°F;
Ice Barrier Underlayment Required: Yes;
Flood Hazards: The City of Harrisburg entered the NFIP on 4/2/2008; the FIS and FIRM panels 0154C and 0162C became effective on 4/2/2008;
Air Freezing Index: 3000;
Mean Annual Temp: 46°F.

R302.2 Townhouses. Each townhouse shall be considered a separate building and shall be separated by fire-resistance-rated wall assemblies meeting the requirements of Section R302.1 for exterior walls.

Exception: A common 1-hour fire-resistance-rated wall assembly tested in accordance with ASTM E 119 or UL 263 is permitted for town houses provided with an automatic fire-extinguishing system designed and installed in accordance with NFPA 13-D, or equivalent, if such walls do not contain plumbing or mechanical equipment, ducts or vents in the cavity of the common wall. The wall shall be rated for fire exposure from both sides and shall extend to and be tight against exterior walls and the underside of the roof sheathing. Electrical installations shall be installed in accordance with the electrical code. Penetrations of electrical outlet boxes shall be in accordance with Section R302.4.

R302.2.1 Continuity. The fire-resistance-rated wall or assembly separating townhouses shall be continuous from the foundation to the underside of the roof sheathing, deck or slab. The fire-resistance rating shall extend the full length of the wall or assembly, including wall extensions through and separating attached enclosed accessory structures.

Exterior walls that extend beyond an adjacent structure that has a fire separation distance less than 5 feet to a common property line shall have not less than a one-hour fire rating with exposure from both sides with no openings allowed therein.

Projections such as a deck that have a fire separation distance of less than 3 feet to a common property line shall have a 1-hour fire rating with exposure from both sides with no openings allowed therein that extends at least 30 inches above the projection.

R302.5.1 Opening protection. Openings from a private garage directly into a room used for sleeping purposes shall not be permitted. Other

openings between the garage and residence shall be equipped with solid wood doors not less than 1 3/8 inches in thickness, solid or honeycomb core steel doors not less than 1 3/8 inches thick or 20-minute fire-rated doors.

R302.13 Fire Protection of Floors. Not adopted by the City.

R303.4 Mechanical ventilation. The dwelling unit may be provided with whole-house mechanical ventilation in accordance with Section M1507.3.

Exception. Where the air infiltration rate of a dwelling unit is greater than 5 air changes per hour when tested with a blower door at a pressure of 0.2 inch w.c. in accordance with Section N1102.4.1.2, whole-house mechanical ventilation in accordance with Section M1507.3 is not required.

R303.5.1 Intake openings. Mechanical and gravity outdoor air intake openings shall be located a minimum of 10 feet from any hazardous or noxious contaminant, such as vents, chimneys, plumbing vents, streets, alleys, parking lots, and loading docks, except as otherwise specified in this code. Where a source of contaminant is located within 10 feet of an intake opening, such opening shall be located a minimum of 3 feet below the contaminant source. For the purpose of this section, the exhaust from dwelling unit toilet rooms, bathrooms and kitchens shall not be considered as hazardous or noxious.

Exception: For equipment replacements on existing structures, gravity outdoor intake openings for combustion air shall be located a minimum of 3 feet from any hazardous or noxious contaminant.

R309.3 Flood Hazard Areas. For buildings located in flood hazard areas as established by Table R301.2(1), garage floors shall be elevated to or above the design flood elevation as determined in Section R322.

R309.5 Fire sprinklers. Not adopted by the City.

R310.2.1 Minimum opening area. All emergency escape and rescue openings shall have a minimum net clear opening of 5.0 square feet. The net clear opening dimensions required by this section shall be obtained by the normal operation of the emergency escape and rescue opening from the inside. The net clear height opening shall be not less than 24 inches and the net clear width shall be not less than 20 inches.

R310.2.2 Window sill height. Where a window is provided as the emergency escape and rescue opening, it shall have a sill height of not more than 48 inches above the floor; where the sill height is below grade, it shall be provided with a window well in accordance with Section R310.2.3.

R310.2.3.1 Ladder and steps. Window wells with a vertical depth greater than forty-eight inches shall be equipped with a permanently affixed ladder or steps usable with the window in the fully open position. Ladders or steps required by this section shall not be required to comply with Sections R311.7 and R311.8. Ladders or rungs shall have an inside width of at least twelve inches, shall project at least three inches from the wall, and shall be spaced not more than eighteen inches on center vertically for the full height of the window well.

R311.3.1 Floor elevations at the required egress doors. Landings or floors at the required egress door shall not be more than 1½ inches lower than the top of the threshold.

> **Exception:** The exterior landing or floor shall not be more than 8 inches below the top of the threshold provided the door does not swing over the landing or floor.

When exterior landings or floors serving the required egress door are not at grade, they shall be provided with access to grade by means of a ramp in accordance with Section R311.8 or a stairway in accordance with Section R311.7.

R311.3.2 Floor elevations for other exterior doors. Doors other than the required egress door shall be provided with landings or floors not more than 8 inches below the top of the threshold.

> **Exception:** A landing is not required where a stairway of two or fewer risers is located on the exterior side of the door, provided the door does not swing over the stairway.

R311.7.5.1 Risers. The maximum riser height shall be eight inches. The minimum riser height shall be four inches. The riser shall be measured vertically between leading edges of the adjacent treads. The greatest riser height within any flight of stairs shall not exceed the smallest by more than three-eighths inch. Risers shall be vertical or sloped from the underside of the nosing of the tread above at an angle not more than 30º from the vertical. Open risers are permitted.

R311.7.8.3 Grip-size. All required handrails shall be of one of the following types or provide equivalent graspability.

> Type I. Handrails with a circular cross section shall have an outside diameter of at least 1 1/4 inches and not greater than 2 inches. If the handrail is not circular, it shall have a perimeter dimension of at least 4 inches and not greater than 6 1/4 inches with a maximum cross section

of dimension of 2 1/4 inches. Edges shall have a minimum radius of 0.01 inch.

Type II. Handrails with a perimeter greater than 6 1/4 inches shall have a graspable finger recess area on both sides of the profile. The finger recess shall begin within a distance of 3/4 inch measured vertically from the tallest portion of the profile and achieve a depth of at least 5/16 inch within 7/8 inch below the widest portion of the profile. This required depth shall continue for at least 3/8 inch to a level that is not less than 1 3/4 inches below the tallest portion of the profile. The minimum width of the handrail above the recess shall be 1 1/4 inches to a maximum of 2 3/4 inches. Edges shall have a minimum radius of 0.01 inch.

Exception: Exterior stairs are allowed to have a horizontal 2X member to form a 1 1/2-inch graspable dimension in lieu of the above-referenced perimeter dimensions.

R311.7.10.3 Circular stairways. Curved stairways with winder treads shall have treads and risers in accordance with Section 1009.3 of the 2006 International Building Code and the smallest radius shall not be less than twice the required width of the stairway.

Exception: The radius restriction shall not apply to curved stairways for occupancies in Group R-3 and within individual dwelling units in occupancies in Group R-2.

R312.1.1 Where required. Guards shall be located along open-sided walking surfaces of all decks, porches, balconies, including stairs, ramps and landings that are located more than 30 inches measured vertically to the floor or grade below. Insect screening shall not be considered as a guard.

R312.1.3 Opening limitations. Required guards shall not have openings from the walking surface to the required guard height which allow passage of a sphere 5 inches in diameter.

Exception: The triangular openings at the open side of stair, formed by the riser, tread and bottom rail of a guard, shall not allow passage of a sphere 6 inches in diameter.

R312.2.1 Window sills. In dwelling units, where the opening of an operable window is located more than 72 inches above the finished grade or surface below, the lowest part of the clear opening of the window shall be a minimum of 18 inches above the finished floor of the room in which the window is located. Operable sections of windows shall not permit openings

that allow passage of a 4-inch-diameter sphere where such openings are located within 18 inches of the finished floor.

Exceptions:

1. Windows whose openings will not allow a 4-inch-diameter sphere to pass through the opening when the opening is in its largest opened position.
2. Openings that are provided with window fall prevention devices that comply with ASTM F 2090.
3. Windows that are provided with window opening control devices that comply with Section R312.2.2.

R313.1 Townhouse automatic fire sprinkler systems. Not adopted by the City.

R313.1.1 Design and installation. Automatic residential fire sprinkler systems for townhouses, when installed, shall be designed and installed in accordance with Section P2904.

R313.2 One- and two-family dwellings automatic fire systems. Not adopted by the City.

R313.2.1 Design and installation. Automatic residential fire sprinkler systems, when installed, shall be designed and installed in accordance with Section P2904 or NFPA 13D.

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

1. In each sleeping room.
2. Outside each separate sleeping area in the immediate vicinity of the bedrooms.
3. On each additional story of the dwelling, including basements and habitable attics but 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. Where the ceiling height of a room is open to the hallway serving a bedroom exceeds that of the hallway by 24 inches or more, smoke detectors shall be installed in the hallway and in the adjacent room.

   Exception. Hallways less than 4 feet in length are allowed to omit the smoke detector within the hallway adjacent to the bedrooms.

R314.3.0 Alterations, repairs and additions. When alterations, repairs or additions requiring a permit occur with a valuation of more than $1000, or

when one or more sleeping rooms are added or created in existing dwellings, the individual dwelling unit shall be equipped with smoke alarms located as required for new dwellings.

Exceptions:

1. Work involving the exterior surfaces of dwellings, such as the replacement of roofing or siding, or the addition or replacement of windows or doors, or the addition of a porch or deck, are exempt from the requirements of this section.
2. Installation, alteration or repairs of plumbing or mechanical systems are exempt from the requirements of this section.

R314.6 Power source. Smoke alarms shall receive their primary power from the building wiring when such wiring is served from a commercial source, and when primary power is interrupted shall receive power from a battery. Wiring shall be permanent and without a disconnecting switch other than those required for overcurrent protection.

Exceptions:

1. Smoke alarms shall be permitted to be battery-operated when installed in buildings without commercial power.
2. Hard wiring of smoke alarms in existing areas shall not be required where the alterations or repairs do not result in the removal of interior wall or ceiling finishes exposing the structure.

R315.2.2 Alterations, repairs and additions. Not adopted by the City.

R319.1 Address identification. New and existing buildings shall be provided with approved address identification. The address identification shall be legible and placed in a position that is visible from the street or road fronting the property. Address identification characters shall contrast with their background. Address identification characters shall be Arabic numbers or alphabetical letters which shall be a minimum of 4 inches high with a minimum stroke width of 1/2 inch. Where access is by means of a private road and the building address cannot be viewed from the public way, a monument, pole or other sign or means shall be used to identify the structure and be located at the edge of said public way. Multi-building campus/complex developments addressed on private or public streets shall be provided with signage at the entrance to the campus/complex indicative of the address ranges within. Address identification shall be maintained.

R403.1.4.1 Frost protection. Except where otherwise protected from frost, foundation walls, piers and other permanent supports of buildings and structures shall be protected from frost by one or more of the following methods:

1. Extended below the frost line specified in Table R301.2.(1);
2. Constructing in accordance with Section R403.3;
3. Constructing in accordance with ASCE 32; or
4. Erected on solid rock.

Exceptions:

1. Protection of freestanding accessory structures with an area of 1500 square feet or less of light-frame construction, with an eave height of 10 feet or less shall not be required.
2. Protection of freestanding accessory structures with an area of 400 square feet or less, of other than light-frame construction, with an eave height of 10 feet or less shall not be required.
3. Decks not supported by a dwelling need not be provided with footings that extend below the frost line. Footings shall not bear on frozen soil unless the frozen condition is permanent.

R404.4 Retaining walls. Retaining walls that are not laterally supported at the top and that retain in excess of 48 inches of unbalanced fill shall be designed to ensure stability against overturning, sliding, excessive foundation pressure, and water uplift. Retaining walls shall be designed for a safety factor of 1.5 against lateral sliding and overturning.

R502.3.1 Sleeping areas and attic joists. Table R502.3.1(1) shall be used to determine the maximum allowable span of floor joists that support sleeping areas and attics that are accessed by means of a fixed stairway in accordance with Section R311.7, provided that the design live load does not exceed 40 pounds per square foot and the design dead load does not exceed 20 pounds per square foot. The allowable span of ceiling joists that support attics used for limited storage or no storage shall be determined in accordance with Section R802.4.

R602.10.1.2 Offsets along a braced wall line. All exterior walls parallel to a braced wall line shall be offset not more than 4 feet from the designated braced wall line location as is shown on Figure R602.10.1.1. Interior walls used as bracing shall be offset not more than 4 feet from a braced wall line through the interior of the building as shown in Figure R602.10.1.1.

Exception: The offset out-of-plane may exceed 4 feet and the out-to-out offset dimension may exceed 8 feet if the area of the offset is less than 200 square feet.

R602.12 Simplified wall bracing. Buildings meeting all of the conditions listed in Items 1-8 shall be permitted to be braced in accordance with this section as an alternative to the requirements of Section R602.10. The entire building shall be braced in accordance with this section; the use of other bracing provisions of R602.10, except as specified herein, shall not be permitted.

1. There shall be no more than two stories above the top of a concrete or masonry foundation or basement wall. Permanent wood foundations shall not be permitted.
2. Floors shall not cantilever more than 24 inches beyond the foundation or bearing wall below.
3. Wall height shall not be greater than 12 feet.
4. The building shall have a roof eave-to-ridge height of 20 feet or less.
5. All exterior walls shall have gypsum board with a minimum thickness of 1/2 inch installed on the interior side fastened in accordance with Table R702.3.5.
6. The structure shall be located where the basic wind speed is less than or equal to 90 mph, and the Exposure Category is A, B, or C.
7. The structure shall be located in Seismic Design Category A, B or C for detached one- and two-family dwellings or Seismic Design Category A or B for town houses.
8. Cripple walls shall be permitted below two-story buildings.

R602.12.1 Circumscribed rectangle. The bracing required for each building shall be determined by circumscribing a rectangle around the entire building on each floor as shown in Figure R602.12.1. The rectangle shall surround all enclosed offsets and projections such as sunrooms and attached garages. Open structures, such as carports and decks, shall be permitted to be excluded. The rectangle shall have no side greater than 80 feet, and the ratio between the long side and short side shall be a maximum of 3:1.

TABLE R602.12.4
MINIMUM NUMBER OF BRACING UNITS ON EACH SIDE OF THE CIRCUMSCRIBED RECTANGLE

TABLE R602.12.4
MINIMUM NUMBER OF BRACING UNITS ON EACH SIDE OF THE CIRCUMSCRIBED RECTANGLE

STORY LEVEL	EAVE-TO-RIDGE HEIGHT (feet)	MINIMUM NUMBER OF BRACING UNITS ON EACH LONG SIDE								MINIMUM NUMBER OF BRACING UNITS ON EACH SHORT SIDE							
		Length of short side (feet)								Length of long side (feet)							
		10	20	30	40	50	60	70	80	10	20	30	40	50	60	70	80
	10	1	2	2	2	3	3	4	4	1	2	2	2	3	3	4	5
		2	3	3	4	5	6	6	7	2	3	3	4	5	6	6	7
	20	1	2	3	3	4	4	5	5	1	2	3	3	4	4	5	5
		2	3	4	5	6	7	7	8	2	3	4	5	6	7	7	8

a. Interpolation shall not be permitted.

b. Cripple walls or wood-framed basement walls in a walk-out condition of a one-story structure shall be designed as the first floor of a two-story house.
c. Actual lengths of the sides of the circumscribed rectangle shall be rounded to the next highest unit of 10 when using this table.

R602.12.3 Bracing unit. A bracing unit shall be a full height sheathed segment of the exterior wall with no openings or vertical or horizontal offsets and a minimum length as specified herein for intermittent sheathing. Bracing units shall be considered per story for continuously sheathed structural wood panels. Interior walls shall not contribute toward the amount of required bracing. Mixing of Items 1 and 2 is prohibited on the same story.

1. Where all framed portions of all exterior walls are sheathed in accordance with Section R602.12.2, including wall areas between bracing units, above and below openings, and on gable end walls, the minimum length of a bracing unit shall be 3 feet.
2. Where the exterior walls are braced with sheathing panels in accordance with Section R602.12.2 and areas between bracing units are covered with other materials, the minimum length of a bracing unit shall be 4 feet.

R802.11.1 Uplift resistance. Roof assemblies shall be connected to the wall plate by the use of approved connectors, consisting of truss/rafter to wall connector, having a resistance to uplift of not less than 175 pounds, installed in accordance with the manufacturer's specifications or have uplift resistance in accordance with Sections R802.11.1.2 and R802.11.1.3.

Where the uplift force does not exceed 200 pounds, rafters and trusses spaced not more than 24 inches on center shall be permitted to be attached to their supporting wall assemblies in accordance with Table R602.3(1).

Where the basic wind speed does not exceed 90 mph, the wind exposure category is B, the roof pitch is 5:12 or greater, and the roof span is 32 feet or less, rafters and trusses spaced not more than 24 inches on center shall be permitted to be attached to their supporting wall assemblies in accordance with Table R602.3(1).

R903.4.1 Secondary (emergency overflow) drains or scuppers. Where roof drains are required, overflow drains having the same size as the roof drains shall be installed with the inlet flow line located 2 inches above the low point of the roof, or overflow scuppers having three times the size of the roof drains and having a minimum opening height of 4 inches shall be installed in the adjacent parapet walls with the inlet flow located 2 inches

above the low point of the roof served. The installation and sizing of overflow drains, leaders and conductors shall comply with the State Plumbing Code.

R905.1.2 Ice barriers. In areas where there has been a history of ice forming along the eaves causing a backup of water as designated in Table R301.2(1), an ice barrier shall be installed for asphalt shingles, metal roof shingles, mineral-surfaced roll roofing, slate and slate-type shingles, wood shingles, and wood shakes. The ice barrier shall consist of not fewer than two layers of underlayment cemented together, or a self-adhering, polymer-modified, bitumen sheet shall be used in place of normal underlayment and extend from the lowest edges of all roof surfaces to a point not less than twenty-four inches inside the exterior wall line of the building. On roofs with slope equal to or greater than 8 units vertical in 12 units horizontal, the ice barrier shall also be applied not less than thirty-six inches measured along the roof slope from the eave edge of the building.

Exception: Detached accessory structures not containing conditioned floor area.

If the ice dam is not inspected, the contractor shall provide an affidavit that the ice dam was installed properly.

N1102.2.9 (R402.2.9) Basement walls. Walls associated with conditioned basements may be insulated from the top of the basement wall down to 10 feet below grade or to the basement floor, whichever is less. Walls associated with unconditioned basements shall meet this requirement unless the floor overhead is insulated in accordance with Sections N1102.1.1 and N1102.2.7.

Exception: Exterior basement walls of enclosed mechanical rooms.

N1102.4.1.2 (R402.4.1.2) Testing. Not adopted by the City.

N1103.3.2 (R403.3.2) Sealing (Mandatory). Ducts, air handlers, and filter boxes shall be sealed. Joints and seams shall comply with Section M1601.4.1 of this code.

Exceptions:

1. Air-impermeable spray foam products shall be permitted to be applied without additional joint seals.
2. Where a duct connection is made that is partially inaccessible, three screws or rivets shall be equally spaced on the exposed portion of the joint so as to prevent a hinge effect.
3. Continuously welded and locking-type longitudinal joints and seams in ducts operating at static pressures less than 2 inches of water

column pressure classification shall not require additional closure systems.

N1103.3.2.1 (R403.3.2.1) Sealed air handler. Not adopted by the City.

N1103.3.5 (R403.3.5) Building cavities (Mandatory). Building framing cavities shall not be used as ducts or plenums.

Exception: Stud spaces and floor joist cavities may be used for return air plenums.

N1103.5 (R403.5) Service hot water systems. Energy conservation measures for service hot water systems shall be in accordance with the State Plumbing Code.

N1104.1 (R404.1) Lighting equipment (Mandatory). Not adopted by the City.

M1301.4 Plastic pipe, fittings and components. Not adopted by the City.

M1305.1.3.1 Ground clearance. Equipment and appliances supported from the ground shall be level and firmly supported on a concrete slab or other approved material extending not less than 1 1/2 inches above the adjoining ground. Such support shall be in accordance with the manufacturer's installation instructions. Appliances suspended from the floor shall have a clearance of not less than 6 inches from the ground.

Equipment and appliances including the service areas shall be provided with a minimum 80-inch headroom clearance.

M1411.6 Insulation of refrigerant piping. Piping and fittings for refrigerant vapor (suction) lines shall be insulated with insulation having a thermal resistivity of at least R-2 and having external surface permeance not exceeding 0.05 perm when tested in accordance with ASTM E 96.

M1502.4.2 Duct installation. Exhaust ducts shall be supported at 4-foot intervals and shall be secured in place. The insert end of the duct shall extend into the adjoining duct or fitting in the direction of airflow. Exhaust duct joints shall be sealed in accordance with Section M1601.4.1. Ducts shall not be joined with screws or similar fasteners that protrude into the inside of the duct.

Section M1506. Subslab Soil Exhaust Systems.

M1506.1 General. When a subslab soil exhaust system is provided, the duct shall conform to the requirements of this section.

M1506.2 Materials. Subslab soil exhaust system duct material shall be air duct material listed and labeled to the requirements of UL 181 for Class 0 air ducts, or any of the following piping materials that comply with the plumbing code as building sanitary drainage and vent pipe: cast iron; galvanized steel; brass or copper pipe; copper tube of a weight not less than that of copper drainage tube, Type DWV; and plastic piping.

M1506.3 Grade. Exhaust system ducts shall not be trapped and shall have a minimum slope of 1/8 unit vertical in 12 units horizontal (1 percent slope).

M1506.4 Termination. Subslab soil exhaust system ducts shall extend through the roof and terminate at least 6 inches above the roof and at least 10 feet from any operable openings or air intake.

Table M1601.1.1(2) Gages of Metal Ducts and Plenums Used for Heating or Cooling

Duct Size	Galvanized Minimum Thickness Inches	Equivalent Galvanized Gage No.	Aluminum Minimum Thickness (In.)
Round ducts and enclosed rectangular ducts			
14 inches or less	0.0157	30	0.0175
> 14 to 18 inches	0.0187	26	0.018
> 18 inches and over	0.0236	24	0.023
Exposed rectangular ducts			
14 inches or	0.0157	28	0.0175
Over 14[a] inches	0.0187	26	0.018

a. For duct gages and reinforcement requirements at static pressures of 1/2 inch, 1 inch, and 2 inches w.c., SMACNA Duct Construction Standard Tables 2-1 ; 2-2 and 2-3 shall apply.

M1601.1.1 Above-ground duct systems. Above-ground duct systems shall conform to the following:

1. Equipment connected to duct systems shall be designed to limit discharge air temperature to a maximum of 250°F.

2. Factory-made air ducts shall be constructed of Class 0 or Class 1 materials as designated in Table M1601.1.1(1).

3. Fibrous duct construction shall conform to the SMACNA Fibrous Glass Duct Construction Standards or NAIMA Fibrous Glass Duct Construction Standards.

4. Minimum thickness of metal duct material shall be as listed in Table M1601.1.1(2). Galvanized steel shall conform to ASTM A 653. Metallic ducts shall be fabricated in accordance with SMACNA Duct Construction Standards Metal and Flexible, except that sheet steel and strip used for duct, connectors, and round duct shall be G40 galvanized steel of lock-forming quality.

5. Use of gypsum products to construct return air ducts or plenums is permitted, provided that the air temperature does not exceed 125°F and exposed surfaces are not subject to condensation.

6. Duct systems shall be constructed of materials having a flame spread index not greater than 200.

7. Stud wall cavities and the spaces between solid floor joists to be used as air plenums shall comply with the following conditions:
   7.1. These cavities or spaces shall not be used as a plenum for supply air.
   7.2. These cavities or spaces shall not be part of a required fire-resistance-rated assembly.
   7.3 .Stud wall cavities shall not convey air from more than one floor level.
   7.4 .Stud wall cavities and joist space plenums shall be isolated from adjacent concealed spaces by tight-fitting fire-blocking in accordance with Section R602.8.
   7.5 .Stud wall cavities in the outside walls of building envelope assemblies shall not be utilized as air plenums.

M1601.4.1 Joints, seams and connections. All longitudinal and transverse joints, seams, and connections in metallic and nonmetallic ducts shall be constructed as specified in SMACNA HVAC Duct Construction Standards—Metal and Flexible and NAIMA Fibrous Glass Duct Construction Standards. All joints, longitudinal and transverse seams, and connections in ductwork outside the building thermal envelope; all return

ducts located within 10 feet of any appliance or all return ducts within a mechanical room; and all supply main trunk ducts and branch duct connections to the main trunk ducts shall be securely fastened and sealed with welds, gaskets, mastics (adhesives), mastic-plus-embedded-fabric systems or tapes.

Closure systems used to seal flexible air ducts and flexible air connectors shall comply with UL 181B and shall be marked "181 B-FX" for pressure-sensitive tape or "181 BM" for mastic. Duct connections to flanges of air distribution system equipment shall be sealed and mechanically fastened. Mechanical fasteners for use with flexible nonmetallic air ducts shall comply with UL 181B and shall be marked 181B-C. Crimp joints for round metallic ducts shall have a contact lap of not less than 1 inch and shall be mechanically fastened by means of not less than three sheet-metal screws or rivets equally spaced around the joint.

Closure systems used to seal metal ductwork shall be installed in accordance with the manufacturer's instructions. Round metallic ducts shall be mechanically fastened by means of at least three sheet metal screws or rivets spaced equally around the joint. Unlisted duct tape shall not be permitted as a sealant on any duct.

Exceptions:

1. Spray polyurethane foam shall be permitted to be applied without additional joint seals.
2. Where a duct connection is made that is partially inaccessible, three screws or rivets shall be equally spaced on the exposed portion of the joint so as to prevent a hinge effect.
3. Continuously welded and locking-type longitudinal joints and seams in ducts operating at static pressures less than 2 inches of water column pressure classification shall not require additional closure systems.

M1601.4.4 Support. Metal ducts shall be supported by 1/2-inch-wide 18-gage, 1-inch-wide 24-gage, or 1 1/2-inch-wide 26-gage metal straps or 12-gage galvanized wire at intervals not exceeding 10 feet or other approved means. Nonmetallic ducts shall be supported in accordance with the manufacturer's installation instructions.

M2101.1 General. Hydronic piping shall conform to Table M2101.1. Approved piping, valves, fittings and connections shall be installed in accordance with the manufacturer's installation instructions. Pipe and fittings shall be rated for use at the operating temperature and pressure of the hydronic system. Used pipe, fittings, valves, or other materials shall be free of foreign materials.

Exception: Polyvinyl Chloride (PVC) plastic pipe conforming to ASTM D1785 or ASTM D2241 is an allowable material for hydronic piping.

G2407.6 (304.6) Outdoor combustion air. Outdoor combustion air shall be provided through opening(s) to the outdoors in accordance with Section G2407.6.1, G2407.6.2, or G2407.6.3. The minimum dimension of air openings shall be not less than 3 inches (76 mm).

G2407.6.3 Alternate combustion air sizing. As an alternate the net free area of openings, ducts, or plenums supplying air to an area containing gas- and oil-burning appliances shall be in accordance with B149.1-10, Natural Gas and Propane Installation Code, published by the Canadian Standards Association (CSA).

When all air is taken from the outdoors for appliances one outside air duct may be used and shall terminate below the draft hood. An exterior opening may be used in place of a duct provided that it terminates within 1 foot above, and within 2 feet horizontally from, the burner level of the appliance having the largest input.

The combustion air duct is required to be upsized one diameter size when a dryer is installed in the same room as the combustion air.

G2408.1 (305.1) General. Equipment and appliances shall be installed as required by the terms of their approval, in accordance with the conditions of listing, the manufacturer's instructions, and this code. Manufacturer's installation instructions shall be available on the job site at the time of inspection. Where a code provision is less restrictive than the conditions of the listing of the equipment or appliance or the manufacturer's installation instructions, the conditions of the listing and the manufacturer's installation instructions shall apply.

After completion of the installation, all safety and operating controls and venting shall be tested before placing the burner in service in accordance with the manufacturer's installation instructions. The following requirements need to be recorded and affixed to the inside of the gas train access panel:

1. The rate of flow of the gas or fuel shall be adjusted to within plus or minus 5 percent of the required Btu/hr rating at the manifold pressure specified by the manufacturer. When the prevailing pressure is less than the manifold pressure specified, the rates shall be adjusted at the prevailing pressure.
2. The gas inlet pressure per the manufacturer's installation settings.
3. The temperature rise across the heat exchanger per the manufacturer's installation settings.

4. The static pressure of the supply and return ducts per the manufacturer's installation settings.

Unlisted appliances approved in accordance with Section G2404.3 shall be limited to uses recommended by the manufacturer and shall be installed in accordance with the manufacturer's instructions, the provisions of this code and the requirements determined by the Building Official.

G2411.1.1 (310.1.1) CSST. Corrugated stainless steel tubing (CSST) gas piping systems shall be bonded to the electrical service grounding electrode system at the point where the gas service enters the building. The bonding jumper shall be not smaller than 6 AWG copper wire or equivalent. Gas piping systems that contain one or more segments of CSST shall be bonded in accordance with this section.

G2415.2 (404.2) CSST. CSST piping systems shall be installed in accordance with the terms of their approval, the conditions of listing, the manufacturer's instructions, and this code.

The piping located on the exterior extending from the gas meter to the inside of the structure shall be a metallic pipe in compliance with Section G2414.4. The entrance into the structure shall be provided with the appropriate transition flange where an alternate gas piping material is utilized on the inside of the structure.

G2415.3 (404.3) Prohibited locations. Piping shall not be installed in or through a ducted supply, return or exhaust, or a clothes chute, chimney or gas vent, dumbwaiter or elevator shaft.

G2427.4.1.1 (503.4.1.1) (IFGS) Plastic vent joints. Plastic pipe and fittings used to vent appliances shall be installed in accordance with the appliance manufacturer's installation instructions. The primer shall be of a contrasting color.

Exception: Where compliance with this section would conflict with the appliance manufacturer's installation instructions.

Part VII—Plumbing. The following chapters are not adopted by the City: Chapter 25—Plumbing Administration; Chapter 26—General Plumbing Requirements; Chapter 27—Plumbing Fixtures; Chapter 28—Water Heaters; Chapter 29—Water Supply and Distribution; Chapter 30—Sanitary Drainage; Chapter 31—Vents; Chapter 32—Traps; and Chapter 33—Storm Drainage.

The provisions of the State Plumbing Code shall apply to the installation, alterations, repairs, and replacement of plumbing systems, including equipment, appliances, fixtures, and appurtenances, and where connected to

a water or sewage system for detached one- and two- family dwellings and multiple single-family dwellings (town houses) not more than three stories high with separate means of egress and their accessory structures.

Part VIII—Electrical. The following chapters are not adopted by the City: Chapter 34—General Requirements; Chapter 35—Electrical Definitions; Chapter 36—Services; Chapter 37—Branch Circuit and Feeder Requirements; Chapter 38—Wiring Methods; Chapter 39—Power and Lighting Distribution; Chapter 40—Devices and Luminaires; Chapter 41—Appliance Installation; Chapter 42—Swimming Pools; Chapter 43—Class 2 Remote-Control, Signaling and Power-Limited Circuits.

The provisions of the State Electrical Code shall apply to the installation, alteration, repair, relocation, replacement, addition to, use, or maintenance of any electrical system, apparatus, wiring, or equipment for electrical, light, heat, power, fire alarms, and associate controls for detached one- and two-family dwellings and multiple single-family dwellings (town houses) not more than three stories high with separate means of egress and their accessory structures.

AH105.2 Footings. A patio cover shall be permitted to be supported on a slab on grade without footings, provided the slab conforms to the provisions of Section R506 of this code, is not less than three and one-half inches thick and the columns do not support live and dead loads in excess of seven hundred and fifty pounds per column.

AH106 Special Provisions for aluminum screen enclosures in hurricane-prone regions. Not adopted by the City.

AM Home Day Care (Title). Amend the title to change “R-3 Occupancy” to “Residential Occupancy”.