

City of Bellaire

ORDINANCE NO. 21-008

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF BELLAIRE, TEXAS, AMENDING CHAPTER 9, BUILDINGS, ARTICLE II, BUILDING CODES, DIVISION 1, GENERALLY, SECTION 9-17, AMENDMENTS TO THE BUILDING CODE; SECTION 9-18, DRAINAGE REQUIREMENTS FOR RESIDENTIAL CONSTRUCTION; AND SECTION 9-21, CONSTRUCTION REQUIREMENTS FOR PRIVATE PARKING AREAS AND DRIVEWAYS IN ALL ZONED DISTRICTS; OF THE CODE OF ORDINANCES OF THE CITY OF BELLAIRE, TEXAS, FOR THE PURPOSE OF INCREASING BUILDING CONTRACTOR INSURANCE REQUIREMENTS; ADDING ADDITIONAL DRAINAGE REQUIREMENTS FOR ELEVATED GARAGES AND DRIVEWAYS; AND ADDING GRAVEL AS AN ALLOWABLE MATERIAL FOR RESIDENTIAL DRIVEWAYS.

WHEREAS, the Building and Standards Commission of the City of Bellaire, Texas has discussed and proposed revisions to Chapter 9, Buildings, of the Code of Ordinance of the City of Bellaire, Texas; **NOW, THEREFORE**,

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF BELLAIRE, TEXAS THAT:

Section 1. *Chapter 9, Buildings, Article II, Building Codes, Division 1, Generally, Section 9-17, Amendments to the building code; Section 9-18, Drainage requirements for residential construction; and Section 9-21, Construction requirements for private parking areas and driveways in all zoned districts; of the Code of Ordinances of the City of Bellaire, Texas ("City's Code"), is hereby amended for the purpose of increasing building contractor insurance requirements, adding additional drainage requirements for elevated garages and driveways, and adding gravel as an allowable material for residential driveways. The amended Division 1, Generally, Section 9-17, Amendments to the building code; Section 9-18, Drainage requirements for residential construction; and Section 9-21, Construction requirements for private parking areas and driveways in all zoned districts; shall read as set out in Appendix A, attached hereto. All other portions of Chapter 9, Buildings, Article II, Building Codes, Division*

1, Generally, of the City's Code not specifically amended hereby shall remain in full force and effect.

Section 2. If any word, phrase, clause, sentence, paragraph, section or other part of this Ordinance or the application thereof to any person or circumstance, shall ever be held to be invalid or unconstitutional by any court of competent jurisdiction, neither the remainder of this Ordinance, nor the application of such word, phrase, clause, sentence, paragraph, section or other part of this Ordinance to any other persons or circumstances, shall be affected thereby.

Section 3. The City Council officially finds, determines and declares that a sufficient written notice of the date, hour, place and subject of each meeting at which this Ordinance was discussed, considered or acted upon was given in the manner required by the Texas Open Meetings Act, as amended, and that each such meeting has been open to the public as required by law at all times during such discussion, consideration and action. The City Council ratifies, approves and confirms such notices and the contents and posting thereof.

Section 4. This Ordinance shall be effective immediately upon its passage and adoption.

PASSED, APPROVED and ADOPTED this, the 25th day of January, 2021.

SIGNED:

Andrew S. Friedberg
Mayor

ATTEST:

Tracy Dutton, TRMC
City Clerk

APPROVED AS TO FORM:

Alan P. Petrov
City Attorney

Appendix A

(Language to be added shown by underline, language to be deleted shown by strike-out)

Chapter 9 - BUILDINGS ARTICLE II. - BUILDING CODES DIVISION 1. - GENERALLY

Sec. 9-16. - Building code adopted.

The current edition of the International Building Code, including all appendices, as adopted and published by the International Code Council, Inc., and as certified by the building official of the city to the city clerk as herein provided, is hereby adopted as the building code of the city as to all its terms and provisions and made a part of this Code as if repeated verbatim herein, with the qualifications, exceptions and additions as may, from time to time, be set out in this Code.

The building official of the city shall, from time to time, file a certificate with the city clerk, certifying the current edition of the International Building Code, then in existence, for use in the city. Said certificate shall specify the edition, by date of publication, number or other designation, and shall specify that in accordance with the terms and provisions of this section, the same shall be deemed the building code of the city and shall be controlling as to all matters in relation thereto on a date certain as set out in said certificate, said date to be no sooner than 30 days after said certificate is filed with the city clerk.

A copy of such certificate shall be maintained in the official files of the city by the city clerk. All amendments to any prior editions of the building code as herein set out shall be deemed controlling as to the new edition unless the same shall have been repealed or otherwise amended by ordinance duly adopted by the city council, amending the Code.

Sec. 9-17. - Amendments to building code.

The building code adopted by the provisions of this article is hereby amended, altered and changed in the following respects:

105. Section 105, Permits, of the Building Code is hereby amended with respect to subsection 105.2, Work Exempt from Permit, by deleting subsections 105.2.2, 105.2.4, 105.2.6, 105.2.7 and 105.2.12.

105. Section 105, Permits, of the Building Code is hereby amended by adding a new subsection thereto, numbered and reading as follows:

Sec. 105.1.a. It shall be unlawful for any person, firm or corporation to erect, construct, enlarge, alter, repair, move, improve, remove, demolish, equip, use, occupy or maintain any building or premises or cause or permit the same to be done without having obtained a building contractor's license issued by the City of Bellaire prior to the commencement of any such work.

105. Section 105, Permits, of the Building Code is hereby amended by adding a new subsection thereto, numbered and reading as follows:

Sec. 105.1.b.

1. Building permits shall be issued only to building contractors who are currently registered with the City of Bellaire or to persons who wish to do work on 1 and 2 family dwellings which are owned and occupied by them as a single family residence.
2. The annual fee for a building contractor's registration shall be established by the City Manager or his designee. All building contractors' registrations shall expire on October 1, following the date of their issuance.
3. Application for a registration as a building contractor shall be made in writing to the building official on a form furnished for that purpose.

4. No building permit shall be issued to any building contractor until he shall have arranged to carry the following insurance or, having been issued, may be revoked if such insurance is not kept in force:
 - (a) Worker's compensation insurance on each and every one of his employees and this insurance shall be in accordance with the provision of the Worker's Compensation Act of the state;
 - (b) Bodily injury liability insurance to the extent of ~~\$300,000.00~~ \$500,000.00 for any one occurrence and ~~\$300,000.00~~ \$500,000.00 in the aggregate;
 - (c) Property damage insurance to the extent of ~~\$100,000.00~~ \$1,000,000.00 for any one occurrence and ~~\$100,000.00~~ \$1,000,000.00 in the aggregate; or a combined single limit of ~~\$300,000.00~~ \$1,000,000.00 per occurrence and in the aggregate;
 - (d) Such insurance shall be written by an admitted company under the supervision of the State Board of Insurance of the state.

Evidence of the compliance with the above insurance requirements shall be considered as having been met when the policy, a copy thereof or a certificate of insurance has been filed with and approved by the building official. Such policy shall include an endorsement thereon that the building official will be notified at least ten days in advance in the event the policy or policies are canceled or expire before the expiration of the license.

5. Registrations issued under the provisions hereof shall not be transferable, but the building contractor's registration of any active member, officer or supervisory employee of a partnership, firm or corporation shall be sufficient to qualify the partnership, firm or corporation to engage in the business of building contracting, if the registration holder is employed by that firm only and does in fact supervise and control those installations and alterations of buildings which are required by this Code to be installed or altered by a person registered under the provisions hereof.
6.
 - (a) The Building Official may revoke or suspend a building contractor's registration or deny a building contractor's registration application if the building contractor:
 - (1) Has repeated or continuing violations, or has received notice for violation, of any laws or regulations relating to any construction work covered by this chapter, including the city's building codes, this chapter, or any of the technical codes adopted under this chapter; or
 - (2) Intentionally gave false or misleading information on its registration form, any document submitted for building permits, or any other document submitted to the city for review.
 - (b) A suspension or revocation of a building contractor's registration may be for a period of up to one year. The Building Official will give written notice to the registration holder of the Building Official's intent to revoke or suspend the registration not less than ten (10) business days prior to the date of revocation or suspension. The written notice will include:
 - (1) A clear statement of the reason the Building Official intends to revoke or suspend the registration;
 - (2) The date the revocation or suspension will become effective, which will not be less than ten (10) business days from the date the written notice is given; and
 - (3) A statement that the registration holder may file a written appeal with the Building Official of the proposed revocation or suspension within five (5) business days of the date of the notice.

- (c) A denial of a building contractor's registration shall be effective for one (1) year. If the Building Official denies a building contractor's application for a registration, the Building Official will give written notice of the denial to the applicant as soon as reasonably possible, but not more than five (5) business days after the decision is made to deny the application for a building contractor's registration. The written notice will include:
 - (1) A clear statement of the reason for the Building Official's denial; and
 - (2) A statement that the applicant may appeal the denial of the building contractor's registration by filing a written notice of appeal with the Building Official within five (5) days of the effective date of the notice of denial.
- (d) *Appeals.*
 - (1) A person may appeal a denial of a registration, the proposed revocation of a registration, or the proposed suspension of a registration, by filing a completed written appeal with the Building Official setting forth the basis for the appeal, along with any required filing fee. The completed appeal must be filed within five (5) business days of the effective date of the notice of the denial, revocation, or suspension.
 - (2) The City Manager will hold an informal hearing on an appeal as soon as is reasonably possible, but not more than ten (10) business days after the date the appeal is properly filed. The Building Official, the person appealing, and any interested party, may present evidence and argument to the City Manager to the extent the City Manager believes the same are relevant to the appeal.
 - (3) After completion of the hearing, the City Manager will render a written decision on the appeal within five (5) business days. The City Manager may affirm, reverse or modify the decision of the Building Official. A copy of the written decision will be provided to the person filing the appeal.

105. Section 105, Permits, of the Building Code is hereby amended by adding a new section 105.8, Construction Hours, to read as follows:

Sec. 105.8. Construction Hours. Within the City of Bellaire, Texas, the construction of buildings and structures and related activities, any of which requires a building permit, other than a homeowner permit, from the City of Bellaire, is permitted during the following time periods only:

Monday through Sunday 7:00 a.m. to 7:00 p.m.

The building official shall include written notice of these construction hours within each building permit issued.

The Building Official may approve exceptions to these work hours, upon receipt of written applications for an exception. Any exception must be granted in writing, listing all conditions for the exception, and be based on the Building Official's finding that said exception furthers the objectives of health, safety, and welfare of the community.

105. Section 105, Permits, of the Building Code is hereby amended by adding a new subsection thereto, numbered and reading as follows:

Sec. 105.9. Permit for temporary use. No permit for temporary use shall be for a longer period than three months, and at the end or three months after approval the building official shall issue written instructions to the electric public service company or other person having control of the supply of energy to the installation, to disconnect service to the temporary installation, unless a permanent approval or an additional temporary approval shall have been given by the building official. To facilitate disconnecting of a temporary installation, ten days before the period of temporary approval is up, the building official shall notify the electric public service company, or other person having control of the supply of energy to the temporary installation, and shall notify

the owner of the installation. A letter addressed to "occupant" at the address of the temporary installation shall be deemed as being sufficient to notify the owner, if name and address of owner are not known by the building official.

111. Section 111, Certificate of Occupancy, of the Building Code is hereby amended by adding a new subsection thereto, numbered and reading as follows:

Sec 111.5 Occupancy Certificate: the Building Official shall not issue a Certificate of Occupancy until a certification is provided by the Contractor that the AC and Mechanical systems meet all the sizing and installation requirements of the International Mechanical Code and manufacturer's instructions, and that the system functions as intended.

114. Section 114, Violations, of the Building Code is hereby amended to read as followed:

Sec. 114.1. Violations. No person, firm, or corporation shall erect, construct, enlarge, alter, repair, move, improve, remove, demolish, equip, use, occupy, or maintain any building or premises or cause or permit the same to be done, contrary to or in violation of any of the provisions of this Code or any order issued by the building official hereunder. Any person violating the provisions of this section shall be guilty of a misdemeanor for each day such violation continues, and as such shall be liable to a fine of not less than \$25.00 nor more than \$200.00 for each day's violation.

116. Section 116, Unsafe Structures and Equipment, of the Building Code is hereby amended to read as follows:

116.1 Section 116.1, Unsafe Structures and Equipment, Conditions

Sec 116.1 Conditions All buildings or structures which are not structurally safe or not provided with adequate egress, or which constitute a fire hazard, or are otherwise dangerous to human life, or which in relation to existing use constitute a hazard to safety or health, or public welfare, by reason of inadequate maintenance, dilapidation, obsolescence, fire hazard, disaster damage, or abandonment, as specified in this Code or any other effective ordinance, are, for the purpose of this section, unsafe buildings. All such unsafe buildings are hereby declared to be public nuisances and shall be abated by repair, rehabilitation, demolition, or removal in accordance with the procedure specified in the current edition of the, International Building Code as adopted and published by the International Code Council and as adopted by section 9-80 of this Code and further as certified by the building official of the city to the city clerk as provided in this chapter.

202. Section 202, Definitions, of the Building Code is hereby amended by deleting there from the definition of "story" as it appears therein, and substituting in its place the following:

STORY is that portion of a building included between the upper surface of any floor and the upper surface of the floor next above, except that the topmost story shall be that portion of a building included between the upper surface of the topmost floor and the ceiling or roof above. If the finished floor level directly above a basement, cellar or unused under-floor space is more than six feet above grade as defined herein for more than 50 percent of the total perimeter or is more than 11 feet, six inches above grade as defined herein at any point, such basement, cellar or unused under-floor space shall be considered as a story.

Chapter 4. Chapter 4 of the Building Code shall be amended by adding thereto the following additional provision:

The building code is hereby amended to allow private carports in commercial districts, which are in Fire Zone 1, to carry no fire rating, provided that the same shall be of steel construction with no enclosed or concealed areas allowed.

304. Section 304.1, Business Group "B", of the Building Code is hereby amended to read as follows:

Special provisions for Group B, Division 2 Office Occupancies and Group R, Division 1 Occupancies.

Sec. 304.1.1 Scope. These requirements shall apply to buildings housing Group B, Division 2 Occupancies used primarily as offices and to Group R, Division 1 Occupancies.

Such buildings three stories or more in height or located more than 30 feet above the lowest level of the fire department vehicle access shall conform to the requirements of this Code. It is specifically provided that the entirety of the building shall conform and not only that part which is in excess of 30 feet above the lowest level of fire department vehicle access. For the purposes of this section, building access shall be defined as an exterior door opening conforming to all of the following:

1. Suitable and available for fire department use.
2. Located not more than two feet above the adjacent ground.
3. Leading to a space, room or area having foot traffic communication capabilities with the remainder of the building.
4. Designed to permit penetration through the use of fire department forcible entry tools and equipment unless other approved arrangements have been made with the building official.

429. Section 429.1 of the Building Code shall be amended by adding thereto the following additional provision:

The building code is hereby amended to allow private carports in commercial districts to carry no fire rating, provided that the same shall be of steel construction with no enclosed or concealed areas allowed.

903. Section 903.2.-of the Building Code is hereby amended to read as follows:

Sec. 903.2. All Occupancies except Group M and Group R, Division 3 shall have an automatic sprinkler system installed:

1. At the top of rubbish and linen chutes and in their terminal rooms. Chutes extending through three or more floors shall have additional sprinkler heads installed at alternate floors. Sprinkler heads shall be accessible for servicing.
2. In rooms where nitrate film is stored or handled.
3. In protected combustible fiber storage vaults as defined in the fire code.
4. In every story or basement of all buildings which exceed two stories in height except when the building is intended for occupancy as a single-family residence.
5. All occupancies exceeding 7,000 square feet, except where required in the International Building Code to be less square footage.

905. Section 905.3 of the Building Code is hereby amended to read as follows:

Sec. 905.3 Where required. Wet standpipes extending from the cellar or basement into the topmost story shall be provided in Group A, Divisions 1, 2 and 2.1 Occupancies with an occupant load exceeding 1,000; in Groups E, I, H, B and R, Division 1 Occupancies three or more stories in height; and in Groups H and B, Divisions 1, 2, and 3 Occupancies having a floor area exceeding 20,000 square feet per floor.

EXCEPTION:

1. Wet standpipes are not required in buildings equipped throughout with an automatic fire-extinguishing system.
2. Wet standpipes are not required in basements or cellars equipped with a complete automatic fire-extinguishing system.

905. Table No. 905.3 of the Building Code is hereby amended to read as follows:

TABLE NO. 905.3 — STANDPIPE REQUIREMENTS

OCCUPANCY 1	NONSPRINKLERED BUILDING 2		SPRINKLERED BUILDING 3, 4	
	STANDPIPE CLASS	HOSE REQUIREMENT	STANDPIPE CLASS	HOSE REQUIREMENT
1. Occupancies exceeding 150 ft. in height and more than one story	III	YES	III	NO
2. Occupancies 3 stories or more but less than 150 ft. in height, except Group R, Div. 3	I and II-5 or III	YES	I (or III)	NO
3. Group A Occupancies with occupant load exceeding 1,000	II	YES	No Requirement	NO
4. Group A, Div. 2.1 Occupancies with over 5,000 square feet in area used for exhibition.	II	YES	II	YES
5. Group I, H, B, Divs. 1, 2 or 3 Occupancies less than three stories in height but greater than 20,000 square feet per floor	II ⁵	YES	No Requirement	NO

2. Class II standpipes need not be provided in assembly areas used solely for worship.
3. Class II standpipes need not be provided in basements having an automatic fire-extinguishing system throughout such basement.
4. Combined systems with their related water supplies may be used in sprinklered buildings.
5. Portions of otherwise sprinklered buildings which are not protected by automatic sprinklers shall have Class II standpipes installed as required for the unsprinklered portions.
6. In open structures where Class II standpipes may be damaged by freezing, the building official may authorize the use of Class I standpipes which are located as required for Class II standpipes.
7. Hose is required for Class II standpipes only.

905. Section 905.8 of the Building Code is hereby amended to read as follows:

Sec. 905.8. Where required. All buildings, three or more stories in height, shall be equipped with one or more dry standpipes.

905. Section 905.3 of the Building Code is hereby amended to add:

Sec. 905.3. Where required. Every building three stories or more in height shall be provided with not less than one standpipe for fire department use during construction. Such standpipes shall be installed when the progress of construction is not more than 30 feet in height above grade. Such standpipe shall be provided with fire department inlet connections at accessible locations adjacent to usable stairs. Such standpipe systems shall be extended as construction progresses to within one floor of the highest point of construction having secured decking or flooring.

In each floor there shall be provided a 2½ inch valve outlet for fire department use. Where construction height requires installation of a combination standpipe, fire pumps and water main connections shall be provided to serve the standpipe.

907. Section 907, Fire Detectors, of the Building Code is hereby amended to add:

Sec. 907. Fire detectors. An approved system which will provide for automatic detection of products of combustion other than heat shall be installed in every mechanical equipment room and in the return air portion of every air conditioning and mechanical ventilation system that serves floors other than the floor on which the equipment is located. The detectors shall be set to operate within the limitations NFPA 72 and the International Building Code and shall be located at each opening into the vertical shaft. Activation of the products of combustion detector shall cut off electric current to the fan.

At least one approved products of combustion detector as required by NFPA Pamphlet No. 72F-1974 shall be installed in the following areas:

1. Rooms containing vital equipment for life safety (i.e., fire pumps, elevator controls, communications, fire alarm system controls, sprinkler systems controls and standby emergency system components).
2. Elevator lobbies.
8. Exit corridors.

EXCEPTION:

Omit products of combustion detector for pressurization systems.

At least one approved rate of rise detector shall be installed in boiler and/or furnace rooms and kitchens.

A single products of combustion or rate of rise detector, upon actuation shall sound a signal in the main fire alarm and communications panel only. If the signal is not acknowledged within a period of three minutes, the general alarm shall sound on the floor of incidence, the floor above and the floor below, and shall relay signal to the Central Control Station to cause all other operations as are necessary to prevent recirculation of smoke and other functions required of the system.

Activation of any two detectors, each on a separate electrical circuit, or actuation of any manual fire alarm station, or any water flow detector shall sound the general alarm on the floor of incidence, the floor above and the floor below, and shall relay signal to the Central Control Station, to cause all other operations as are necessary to prevent recirculation of smoke and other functions required of the system.

Elevator lobbies shall be provided with at least two approved products of combustion detectors, each connected to a separate electrical circuit.

Each products of combustion detector or rate of rise detector shall not exceed its listed spacing and shall be located and spaced in accordance with NFPA Pamphlet 72E-1974.

907. Section 907.2.12.2, Voice Communication System, of the Building Code is hereby amended to read as follows:

Sec. 907.2.12.2. Voice communication system. There shall be two separate approved continuously electrically supervised voice communication systems, one for fire department communication system and the other a public voice communication (address) system between the Central Control Station and the following areas:

1. Elevators, elevator lobbies, corridors and stairways.
2. Every office area exceeding 1,000 square feet in area.
8. Each dwelling unit and hotel guest room.

The entire fire alarm and communication system shall be continuously electrically supervised against component failure of the audio path including amplifiers, speakers, speaker wiring, switches and all electrical contacts, and must detect opens and shorts which might impair the function of the system. All equipment shall be located above grade. Manually operated voice controls shall not include volume controls with public access. Pre-recorded messages shall not be permitted.

The fire department systems shall include a two-way communication system for fire department use. The system shall include a telephone connection of uniform type at each elevator bank, and shall be connected to the Central Control Station. At least two portable telephone handsets per each ten stories in height or any portion thereof shall be provided at the Central Control Station. When approved, the fire department system may be combined with the public voice communication system and voice alarm system.

907. Section 907.2.12.3, Central Control Station, of the Building Code is hereby amended to read as follows:

Sec. 907.2.12.3 Central control station. A Central Control Station for fire department operations shall be located on the lowest building level having building access. The location shall be easily accessible from the outside. The location and its access shall be protected by a two-hour fire-rated occupancy separation.

The Central Control Station shall contain the voice communication systems panel, fire detection and alarm system panels, status indicators and controls for elevators and air handling systems, controls for unlocking stairway doors, a public telephone, sprinkler valve and water flow detectors, and standby power controls. All panels containing emergency communications equipment for fire alarm use required by these requirements shall be provided with locks suitable for opening with a master key as required by the City of Bellaire Fire Department.

909. Section 909, Smoke Control, of the Building Code is hereby amended to add:

Sec. 909. Smoke control. Natural or mechanical ventilation for the removal of the products of combustion shall be provided in every story and shall consist of one or more of the following:

1. Panels or windows in the exterior wall which can be opened from an approved location other than the fire floor. Such venting facilities shall be provided at the rate of at least 20 square feet per 50 lineal feet of exterior wall in each story, and distributed around the perimeter at not more than 50 foot intervals. Such panels shall be clearly identified with letters of contrasting color not less than three inches in height.
2. Approved tempered glass may be used in lieu of openable panels.
3. When fire sprinklers are installed in compliance with section 1807(m), the mechanical air handling equipment may be designed to assist smoke removal. Under fire conditions, the return and exhaust air shall be taken directly to the outside without recirculation to other sections of the building.

4. A shaft through which smoke and heat can be mechanically vented to the outdoors. The size of the shaft shall be uniform throughout and of such dimensions as to provide not less than 60 air changes per hour in the largest compartment served anywhere in the building. Openings into the shaft shall be protected with an automatic single piece shutter located as high in the room as possible and designed to vent the entire compartment.
5. Any other design which will produce equivalent results.

1507.

Section 1507.8 of the Building Code is hereby amended to read as follows:

Sec. 1507.8. Notwithstanding what is contained herein, wood shingles shall not be allowed for any new roof construction and additions to presently existing roofs.

Section 1507.9 of the Building Code is hereby amended to read as follows:

Sec. 1507.9. Notwithstanding what is contained herein, wood shakes shall not be allowed for any new roof construction and additions to presently existing roofs.

Sections R402.1 and R402.2 of the International Energy Conservation Code are hereby amended to include that:

In addition to the requirements of Sections R402.1 and R402.2 of the 2012 IECC, an air barrier and Class III Vapor Retarder shall be applied over all surfaces of the insulation facing the crawlspace, if the insulation does not effectively provide the same. No Class I or Class II Vapor Retarders shall be applied over the interior surface of the floor assembly above a crawlspace, except at shower pans and areas intended to hold water.

Sec. 9-18. - Drainage requirements for residential construction.

- (a) *Requirement for a drainage plan.* Before a construction permit will be issued, a drainage plan must be approved for all residential sites requiring a permit for the construction of improvements or additions if 25 percent or 1,500 square feet, whichever is smaller, of the lot will be disturbed or regraded.
- (b) *Objectives of drainage plan.*
- (1) Prevent stormwater from flowing onto adjacent property unless appropriate drainage easement agreement is obtained; and
 - (2) Control fill that may increase flood damage.
- (c) *Definitions.* Unless specifically defined below, words or phrases used in this section shall be interpreted to give them the meaning they have in common usage and to give this section its most reasonable application.
- (1) *Special flood hazard area* means the land in the floodplain subject to a one percent or greater chance of flooding in any given year.
 - (2) *Base flood* means the flood having a one percent chance of being equaled or exceeded in any given year.
 - (3) *Structure* means any area of a walled or roofed building.
 - (4) *Elevated structure* means any area of a walled or roofed building having the bottom of the lowest horizontal structure member of the floor elevated above the ground.
 - (5) *Two-year frequency* means a rainfall intensity having a 50 percent probability of occurrence in any given year that occurs on the average of every two years over a long period of time.
 - (6) *No net increase* means that the volume of material placed on a lot at any time must not be greater than the amount of material removed from the lot during demolition and subsequent grading operations.
 - (7) *Fill credit* means the volume of material removed from the lot during demolition of an existing structure that may be imported onto the lot for construction, grading and drainage purposes. The fill credit may be determined using the chart maintained by the building official or by calculating the volume of material removed from the lot during demolition and subsequent grading operations. Any fill above the base flood elevation (BFE) will not count against the fill credit for the lot.
 - (8) *Pier and beam foundation construction* means the floor of the structure is elevated above the ground, supported by a number of piers and beams, such that floodwaters may rise and recede under the floor of the structure. The area under the structure should be graded such that water will not pond.
 - ~~(9) The height to which any point on the lot, other than the foundation, may be filled is limited to an elevation calculated by multiplying the distance from the curb by one percent per foot and adding the top of curb elevation. Existing elevations which are higher than the calculated elevations are not required to be cut to meet the requirements of this section. The calculation only applies to fill above the existing elevation. The one percent does not apply to proposed interior grades or cross-slopes of swales. In no case shall any point on the lot be filled more than eight inches above the existing (pre-construction) elevations.~~
 - ~~(10) A lot on which more than four inches of fill is placed shall be required to install pressure-treated rot boards or retaining walls on either side of the area in which the fill increases the elevation of the lot above that of its neighbors. Rot board or retaining wall height in front of the building line is limited to one inch above finished grade.~~
 - ~~(119)~~ *Yard Amenities* are defined as pools, spas, fountains, waterfalls, outdoor kitchens, barbeque pits, fireplaces and other similar outdoor raised features. The one percent and eight inch maximum fill limit does not apply to yard amenities.
- (d) *Contents of drainage plan.*

- (1) *Survey and elevation data.* The drainage plan shall include data obtained by a topographical survey performed under the supervision of and signed, sealed and dated by a professional land surveyor registered in the state. The topographical survey shall include as a minimum, the location and elevation of existing sidewalks, curb/gutters, ditches, storm sewers, sanitary sewers and the existing elevations of the lot. The survey should be completed prior to demolition of any structures on the property to provide baseline conditions to establish the fill credit for the property. The elevations shall be based on the current datum and vertical benchmark system being used by the city and should be at a maximum spacing of 20 feet throughout the property. The city will furnish, upon request, location and elevation of benchmarks available within the city. The drainage plan shall show the proposed finished floor elevation and the finished grade elevations of all proposed paving and grading on the site and shall include existing and planned spot elevations at a maximum of 20 feet spacing covering the lot:
 - a. Along the perimeter of the lot;
 - b. Grid across the lot; and
 - c. Finished floor and adjacent finished grade along the perimeter of all slabs, including but not limited to buildings, sidewalks, patios, driveways, and decks.
- (2) *Requirement to drain.* Drainage of the lot may be obtained by surface or subsurface means, or a combination of the two, as is appropriate and necessary so that the stormwater falling on the residential lot upon which construction is planned will drain into the street, ditch or storm sewer system of the city and not onto adjacent property. However, as a minimum requirement, each lot will be required to provide drainage on each side, or in the case of a corner lot, on the sides adjoining the adjacent lots, designated to carry the two year design storm, sloping to the street, ditch, or storm sewer. Cross sectional elevation of the swale shall be shown on the drainage plan at three points: at the house, at the swale flow line, and at the side property line. A minimum of three elevations are required to adequately define a swale cross section. The engineer preparing the drainage plan shall provide supporting calculations to demonstrate that the drainage system meets the design criteria. Cross section elevations of a swale shall be provided at the front property line, the front of the house, the midpoint of the house, the back of the house and at the beginning of the swale.
- (3) *Limitation on lot fill for property located in the special flood hazard area.*
 - a. *Option 1 — Elevated structure without fill.* The proposed improvements to a property shall result in no net increase in volume of material on the lot with the exception of the small amount of concrete used for pier and beam foundation construction that may be permitted by the building official. The fill credit volume may be used to increase the elevation of the lot no more than the amount needed to create a maximum elevation equal to a one percent slope from the existing street, top of curb, edge of road (if no curb exists) or existing ditch high bank, but in no case shall more than eight inches of fill be allowed. The engineer preparing the drainage plan must provide calculations and supporting data demonstrating that no net increase in volume of material is proposed.
 - b. *Option 2 — Elevated structure with fill.* If the existing ground elevation at the proposed structure is equal to or above the base flood elevation (BFE) and the finished floor of the proposed structure will be elevated to one foot above the BFE by means of fill, then no additional fill on the lot will be allowed. Any volume of material used to raise the existing lot elevation to the one percent or eight inch maximum fill limit for grading and drainage purposes must be mitigated by lowering the finished grade below the existing (pre-construction) elevation elsewhere on the lot. The engineer preparing the drainage plan must provide calculations and supporting data demonstrating that no net increase in volume of material is proposed with the exception of raising the finished floor to one foot above the BFE.
- (4) *Limitations on lot fill for property not located in the special flood hazard area.* Lot fill shall be limited to no more than the amount necessary to achieve adequate drainage based on generally accepted engineering design practices but no more than the amount needed to create a maximum elevation equal to a one percent slope from the existing street, top of curb, edge of road (if no curb exists) or existing ditch high bank. In no case shall more than eight inches of fill be allowed on any lot.

- (5) *Engineer's seal.* The drainage plan shall be prepared, certified, sealed and signed by a civil engineer licensed as a professional engineer in the state.
- (6) *Maximum Fill Limit.* The height to which any point on the lot, other than the foundation, may be filled is limited to an elevation calculated by multiplying the distance from the curb by one percent and adding the top of curb elevation. Existing elevations which are higher than the calculated elevations are not required to be cut to meet the requirements of this section. The calculation only applies to fill above the existing elevation. The one percent does not apply to proposed interior grades or cross-slopes of swales. In no case shall any point on the lot be filled more than eight inches above the existing (pre-construction) elevations.
- (7) *Maximum Garage and Driveway Elevations.* The height to which a driveway may be elevated up to the building line is 1% grade or less as measured from the inside of the top of curb. Behind the building line, the driveway or garage cannot exceed the 3% grade limitation as measured from the inside of the top of curb when built in accordance with crawlspace or other approved method of construction. Open areas for pier and beam construction or other approved methods must be provided with one (1) square inch of net free area for one (1) square foot of enclosed area.
- (8) *Rot Boards or Retaining Walls Required.* A lot on which more than four inches of fill is placed shall be required to install pressure-treated rot boards or retaining walls on either side of the area in which the fill increases the elevation of the lot above that of its neighbors. Rot board or retaining wall height in front of the building line is limited to one inch above finished grade.
- (9) *Conflicts.* In the event of a conflict between this section and the International Building Code, as adopted, the Building Official shall follow the provisions of the International Building Code.
- (e) *Certificate of occupancy.* As a condition precedent to the issuance of any certificate of occupancy, a second topographical survey shall be made under the supervision of a registered professional land surveyor registered in the state which shall show the "as-built" elevation of the residence and the finished grade elevations of the lot, patios, drives, sidewalks, landscaped areas, etc. A civil engineer licensed as a professional engineer in the state shall review the "as-built" survey for conformance with the approved drainage plan. The engineer or an engineer-in-training in his employ shall conduct a site visit of the location shown on the survey at a date equal to or after the date of the "as-built" survey. The engineer shall draft a letter with the following statement to be attached to and submitted with the "as-built" survey:
- I, _____, a Professional Engineer licensed in the state, have reviewed the "as-built" survey of this property and, on the basis of that review and a visit to the site, state that it conforms to the design and intent of the approved drainage plan submitted for permit and is in compliance with Chapter 9, Buildings, Section 9-18, Drainage requirements for residential construction, of the Code of Ordinances of the City of Bellaire, Texas.

_____ (Date)	_____ (Seal & Signature)
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The building official shall deny a certificate of occupancy until the "as-built" survey and the Engineer's statement have been properly submitted and approved.

- (f) *Duty to maintain drainage.* All drainage improvements detailed in the drainage plan must be maintained to prevent stormwater runoff from flowing onto adjacent property. Interim measures to prevent stormwater from flowing onto adjacent properties shall be provided and maintained during construction. It is the responsibility of the owner and all subsequent owners to maintain the drainage on their property and to assure that no additional fill is added over the amount in the approved drainage plan. No alterations to the approved drainage plan shall be performed without first having submitted a revised drainage plan and obtaining the proper approval. The city building official shall maintain a copy of all drainage plans approved by the city.

- (g) *Penalties.* Any owner or agent of a residential building site or lot for which a drainage plan is required that fails to comply with, or is in violation of, any of the requirements or provisions of this section, or fails to maintain the approved drainage, shall be subject to a fine in an amount not to exceed \$500.00. Each day during which any such violation is committed or continues shall be considered a separate offense.
- (h) *Variance.*
 - (1) Where a baseline fill credit does not exist, as in the case of remodeling or yard amenity addition, the building official may allow excess fill credit for yard amenities, based upon the facts and circumstances of each application, as long as the objectives of the drainage plan continue to be met.
 - (2) The building and standards commission of the city, upon application and hearing, shall have the power and authority to allow a variance from the requirements of this section upon a finding that the strict application of the requirements of this section will affect a hardship of the property and that the proposed design complies with the spirit and intent of this section and provides protection to the neighboring properties at least equivalent to that provided by this section. The building and standards commission shall require that sufficient evidence or proof be submitted to substantiate any claims that may be made regarding such applications.

Sec. 9-21. - Construction requirements for private parking areas and driveways in all zoned districts.

This section shall control and regulate the construction and/or reconstruction of all areas upon private property, in all zoned districts, for the ingress and egress of motor vehicles and the parking of the same.

All construction or reconstruction of parking areas, under the terms and provisions of this section, shall be in accord with the requirements hereinafter set out. These requirements shall be deemed the minimum requirements. However, if at any time in the opinion of the building official, special circumstances shall necessitate construction in accord with more restrictive and/or higher standards, then the building official may specify the requirements, which shall be deemed to supersede and shall be controlling as to any other requirements herein provided with which they shall be in conflict.

- (a) *Single-family residential.* For all uses classified as single-family residential, parking areas may be paved with either concrete, gravel, or masonry paving units, subject only to such additional standards or conditions as shall be reasonably imposed by the building official as follows:
 - (1) Concrete construction. Four-inch 3,000 psi with #3 reinforcing bars on 18-inch centers.
 - (2) Masonry paving units shall be installed and maintained according to the manufacturer's recommendations for the anticipated traffic load.
 - (3) Gravel shall be installed and maintained in a manner which will be structurally capable of supporting the anticipated traffic load. Gravel shall be installed and maintained in accordance with industry best practices and with a minimum size of 3/8" and a maximum of size of 3/4" for the gravel surface. Gravel shall not be used within the city right-of-way.
- (b) *Nonsingle-family residential.* For all uses not classified as single family residential, parking areas may be paved with concrete, asphalt materials, or masonry paving units. The design of such parking areas shall be prepared, sealed and signed by a civil engineer licensed as a professional engineer in the state.
- (c) *[Exceptions.]* The building and standards commission of the city shall have the power and authority, upon application and hearing, to allow the use of materials other than those herein specified or other methods of construction not herein specifically provided, provided the building and standards commission shall find the following:
 - (1) That the proposed design is satisfactory and complies with the intent of this section; and
 - (2) That the material, method or work offered is, for the purposes intended, at least the equivalent of that prescribed in this section in quality, strength, effectiveness, durability and safety.The building and standards commission shall require that sufficient evidence or proof be submitted to substantiate any claims that may be made regarding such use.
- (d) *[Authority to override.]* The building official shall have the authority, in the case of an emergency or other overriding public necessity, to permit the construction of a parking area not in accord with the terms and provisions of this section when the same shall be deemed necessary by the building official.