

AN ORDINANCE
ADOPTING THE INTERNATIONAL RESIDENTIAL CODE 2012
AS THE ONE AND TWO FAMILY DWELLING CODE OF THE CITY OF ELGIN

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF ELGIN, ILLINOIS:

Section 1. That Chapter 16.36 entitled "One and Two Family Dwelling Code" of the Elgin Municipal Code, 1976, as amended, be and is hereby repealed.

Section 2. That Chapter 16.36 entitled "One and Two Family Dwelling Code" be and is hereby added to the Elgin Municipal Code, 1976, as amended, to read as follows:

Chapter 16.36
ONE AND TWO FAMILY DWELLING CODE

Sections:

- | | |
|-----------|------------------------------------|
| 16.36.010 | Adopted-Exceptions. |
| 16.36.020 | Additions, Insertions and Changes. |
| 16.36.030 | Illustrations. |
| 16.36.040 | Conflicts With Other Provisions. |

16.36.010 ADOPTED-EXCEPTIONS.

That a certain document, one (1) copy of which is on file in the office of the City Clerk of the City of Elgin, being marked and designated as the *International Residential Code 2012*, as published by the International Code Council, be and is hereby adopted as and shall be known as the One and Two Family Dwelling Code of the City of Elgin for regulating the fabrication, erection, construction, enlargement, alteration, repair, location and use of one- and two-family dwellings, their appurtenances and accessory structures; and each and all of the regulations, provisions, penalties, conditions and terms of said *International Residential Code 2012* are hereby referred to, adopted, and made a part thereof, as if fully set out in this ordinance, with the additions, insertions, deletions and changes prescribed in this chapter.

16.36.020 ADDITIONS, INSERTIONS AND CHANGES.

The *International Residential Code 2012* is amended and revised in the following respects:

Section R105.2 Work exempt from permit, shall be amended to read as follows:

In the subsection entitled Building, subparagraphs 1, 2, 3, 5 and 10 shall be deleted in their entirety.

Section R102.8 Historic Buildings, shall be created to read as follows:

The provisions of this chapter relating to the construction, repair, alteration, addition, restoration and movement of structures, and change of occupancy, shall not be mandatory for exterior architectural features of historic buildings where such exterior architectural features are judged by the building official to not constitute a distinct life safety hazard.

For the purposes of this chapter, "Historic Building" shall mean a building that is listed in or eligible for listing in the National Register of Historic Places, or that is designated as historic under state or local law, or that is eligible for designation as a landmark or a historically/architecturally significant residential structure under Title 20 of the Elgin Municipal Code, 1976, as amended.

Section R108 Fees, shall be amended to read as follows:

Permit fees shall be in accordance with the provisions set forth in Chapter 16.48 of this code.

Section R112.1 Board of Appeals General, shall be amended to read as follows:

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, there shall be and is hereby created a board of appeals. The board of appeals shall consist of the Building Commission members and shall hold office at its pleasure. The board shall adopt rules of procedure for conducting its business.

Table R301.2(1) Climatic and Geographic Design Criteria, is amended to read as follows:

Ground Snow Load - lbs. per sq. ft. – 30 psf

Wind Speed - 90 mph

Topographic effects – No

Seismic Condition by Zone – B

Subject to Damage from Weathering - Yes - Severe

Frost Line Depth - 42 inches below grade

Termite - Moderate to Heavy

Winter Design Temperature - minus 10 deg F

Ice Barrier Underlayment Required – Yes

Flood Hazards February 12, 1975

Air Freezing Index -1000-2000

Mean Annual Temp 45-50 F

Table R301.7 Allowable Deflection of Structural Members, shall be amended to read as follows:

TABLE R301.7
ALLOWABLE DEFLECTION OF STRUCTURAL MEMBERS ^{a, b, c, d, e}

STRUCTURAL MEMBERS	ALLOWABLE DEFLECTION
Rafters having slopes greater than 3:12 with no finished ceiling attached to rafters	L/180
Interior walls and partitions	H/180
Floors and plaster ceilings ^f	L/360
All other structural members	L/240
Exterior walls with plaster or stucco finish	H/360
Exterior walls—wind loads ^a with brittle finishes	H/240
Exterior walls—wind loads ^a with flexible finishes	L/120 ^d
Lintels supporting masonry veneer walls ^e	L/600

Note: L = span length, H = span height

a. The wind load shall be permitted to be taken as 0.7 times the Component and Cladding loads for the purpose of determining deflection limits herein.

b. For cantilever members, L shall be taken as twice the length of the cantilever.

c. For aluminium structural members or panels used in roofs or walls of sunroom additions or patio covers, not supporting edges of glass or sandwich panels, the total load deflection shall not exceed L/60. For continuous aluminium structural members supporting edge of glass, the total load deflection shall not exceed L/175 for each glass lite or L/60 for the entire length of the member, whichever is more stringent. For sandwich panels used in roofs or walls of sunroom additions or patio covers, the total load deflection shall not exceed L/120.

d. Deflection for exterior walls with interior gypsum board finish shall be limited to an allowable deflection of H/180.

e. Refer to Section R703.7.2.

f. Refer to Section R502.11.1 amended for wood truss deflection.

Section R302.2 Townhouses, shall be amended to read as follows:

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 2-hour fire-resistance-rated wall is permitted for townhouses 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 applicable provisions of Chapter 16.24 of the Elgin Municipal Code, 1976, as amended. Penetrations of electrical outlet boxes shall be in accordance with Section R302.4

Section R302.3 Exception No. 2, shall be deleted

Section R302.5.2.1 Ducts in garages, shall be created to read as follows:

Ducts in the garage shall be enclosed with 5/8" fire code type gypsum board or equivalent.

Section R302.5.2.2 Installation of heating units in garages, shall be created to read as follows:

Installation of a dwelling heating unit or other fuel-burning appliance in the garage is prohibited. One-hour fire-rated partitions between the space containing a house heating unit and the garage space shall be installed. Doors are not permitted common to the heater room or fuel burning appliance room and the garage.

Exception: Garage heating units with UL listing (or equivalent) for such use or a sealed combustion furnace which utilizes combustion air from the outdoors shall be permitted.

Section R 302.6 Dwelling/garage fire separation, shall be amended to read as follows:

The garage shall be separated from the residence and its attic as required by Table R302.6 and/or as follows:

The walls separating the garage from habitable areas of the house shall have one (1) layer of 5/8" fire code type gypsum board on each side or equivalent. Where a gable type connection is used, the same construction shall be utilized as that separating the garage from the adjacent habitable space. When the garage ceiling is to be finished to separate the garage from the attic space, two (2) layers of 5/8" fire code type gypsum board, or equivalent, shall be installed. The second layer of gypsum board shall be positioned perpendicular to the first layer. All joints shall be taped and spackled. Where habitable rooms are constructed over the garage, all walls shall have one (1) layer of 5/8" fire code type gypsum board or equivalent applied, and the ceiling shall have two (2) layers 5/8" fire code type gypsum board or equivalent.

Table R302.6 Dwelling/Garage Separations, shall be amended to read as follows:

**TABLE R302.6
DWELLING/GARAGE SEPARATION**

SEPARATION	MATERIAL
From the residence and attics	Not less than 5/8-inch Type X gypsum board or equivalent applied to both sides
From all habitable rooms above the garage	Not less than 2 layers of 5/8-inch Type X gypsum board on the ceiling and 1 layer of 5/8-inch Type X gypsum board on all walls or equivalent
Structure(s) supporting floor/ceiling assemblies used for separation required by this section	Not less than 5/8-inch Type X gypsum board or equivalent
Garages located less than 3 feet from a dwelling unit on the same lot	Not less than 5/8-inch Type X gypsum board or equivalent applied to the interior of the exterior walls that are within this area

Section R302.7 Under-stair protection, shall be amended as follows:

All accessible space under interior stairs shall have under stair surface, landings and any soffits protected on the enclosed side with minimum 1/2" gypsum board.

Section R303.3 Bathrooms, shall be amended to read as follows:

Bathrooms, water closets, compartments and similar rooms shall be mechanically vented to the exterior using wall louvers or roof caps with insect screens. Vent discharge into the attic or soffit is prohibited. Mechanical vents shall be sized to provide five (5) air changes per hour.

Section R305.1.1 Basements, shall be amended to read as follows:

The bottom edge of the floor joists in basements without habitable spaces may project to within 7 feet 6 inches (2185 mm) of the finished floor, and beams, girders, ducts or other obstructions may project to within 6 feet 9 inches (2032 mm) of the finished floor.

Section R309.1 Floor Surfaces, shall be amended to read as follows:

The garage floor surface shall be a minimum four (4) inches of concrete on a minimum four (4) inch crushed stone, sand or gravel base. The floor used for parking of vehicles shall be sloped to facilitate the movement of liquids toward the main vehicle entry doorway or to a floor drain installed to the requirements of the Illinois State Plumbing Code as amended by Chapter 16.20 of the Elgin Municipal Code, 1976, as amended.

Section R309.6 Detached garages, shall be created to read as follows:

Detached frame garages shall comply with the construction requirements for one-story dwellings with the following exceptions:

1. Garages constructed within four (4) feet of a residential dwelling are required to meet minimum foundation requirements for dwellings. Foundation walls and footings shall not be less than forty-two (42) inches below finish grade. The minimum foundation thickness shall be eight (8) inches. Any walls facing the residence, in whole or in part, shall have a one-hour fire rating.
2. Grade beam construction is permitted for garages constructed more than four (4) feet from the dwelling. The grade beam design shall be as follows: sixteen (16) inches deep by twenty (20) inches at the top and ten (10) inches at the base with two one-half inch diameter re-bars continuous around the perimeter and poured monolithically with the floor slab (see Illustration A at the end of this chapter). Floor slab shall be a minimum four (4) inches thick with six (6) inch by six (6) inch number ten (10) welded wire fabric or equivalent throughout. The grade beam shall rest on undisturbed soil or engineered fill. Garages larger than 490 square feet require foundations to be extended to forty-two (42) inches below grade. A twelve-inch thick trench wall is permitted.
3. The maximum spacing for studs shall be twenty-four (24) inches O.C. and sixteen (16) inches O.C. if square footage is over 490 square feet.
4. Wall sheathing and building paper may be omitted if walls are ten (10) feet in height or less and corner bracing is used. Each corner is to be braced from the top outward in two directions to a minimum of seventy-two (72) inches from corner at sill plate, and may be applied on the inside surface of studs. The minimum bracing size shall be one (1) inch by four (4) inches.
5. Corner posts may consist of two (2) two (2) inch by four (4) inch posts or one (1) four (4) inch by four (4) inch post.
6. Top plates may be single, provided rafters occur directly over the studs and the plate is adequately tied at joints, corners and intersecting walls by a minimum 3-inch by 6-inch by 0.036-inch-thick galvanized steel plate that is nailed to each wall or segment of wall by six 8d nails on each side and garage square footage is 490 or less.
7. Rafter ties at eaves shall not be less than two (2) inches by four (4) inches with the maximum spacing of four (4) feet O.C.
8. Concrete floor: A minimum four (4) inches of concrete on minimum a four (4) inch crushed stone, sand or gravel base shall be provided. The floor used for parking of vehicles shall be sloped to facilitate the movement of liquids toward the main vehicle entry doorway or to a floor drain installed to the requirements of the Illinois State Plumbing Code as amended by Chapter 16.20 of the Elgin Municipal Code, 1976, as amended.

9. House wrap shall be required when vinyl or aluminum siding is applied.

Section R309.7 Detached masonry garages, shall be created to read as follows:

Detached masonry or masonry veneer garages shall comply with the construction requirements for dwellings with the following exception: Combined foundation wall and footing shall be permitted provided it extends forty-two (42) inches below grade and the bottom is flared to sixteen (16) inches. The wall width shall be wide enough to support the wall above but shall not be less than eight (8) inches wide.

Section R309.8 Maximum height of detached residential garages, shall be created to read as follows:

The maximum height of a detached residential garage shall be fifteen (15) feet. (See Illustrations B and C of this chapter.)

Section R 310.1.2 Minimum opening height, shall be amended to read as follows:

The minimum net clear opening height shall be 24 inches (610 mm).

Exception: The minimum net clear opening height of windows below grade shall be 36 inches (914 mm).

Section R310.1.3 Minimum opening width, shall be amended to read as follows:

The minimum net clear opening width shall be 20 inches (508 mm).

Exception: The minimum net clear opening width of windows below grade shall be 24 inches (610mm).

Section R312.3 Retaining Wall Guards, shall be created to read as follows:

Where retaining walls with differences in grade level in excess of 30" are located closer than two (2) feet to a walk, path, pedestrian area, parking lot or driveway on the high side, such retaining walls shall be provided with guards that are constructed to provide a protective barrier not less than 36" high measured vertically above the adjacent walking surface. Open guards shall have balusters, horizontal intermediate rails or other construction such that a 21-inch diameter sphere cannot pass through any opening.

Section R313.1 Townhouse automatic fire sprinkler system, shall be amended to read as follows:

Where a townhouse is to be located upon land that was within the corporate limits of the City of Elgin as of the adoption date of this ordinance, such townhouse shall include fire sprinkler protection in the basement area only. This fire sprinkler system can be part of the domestic water system, without backflow prevention, as long as the system is a looped system with no dead-ends in excess of 2 feet.

Exceptions:

1. When wood I-joists or open web trusses are used and protected with a ½-inch gypsum wallboard membrane, 5/8-inch wood structural membrane, or equivalent on the underside of the floor framing member.
2. Wood floor assemblies using dimensional lumber or structural composite lumber equal to or greater than 2-inch by 10-inch nominal dimension, or other approved floor assemblies demonstrating equivalent fire protection.
3. An automatic residential fire sprinkler system shall not be required when additions or alterations are made to existing townhouses that do not have an automatic residential fire sprinkler system installed.

In all such instances above, the general contractor shall be responsible for ensuring that the homeowner is advised of the availability and benefits of a full automatic fire sprinkler system (NFPA 13D compliant). Such notification shall be on a form provided by the City of Elgin and include the printed name and signature of the homeowner.

Where a townhouse is to be located upon land annexed to the City of Elgin after the adoption date of this ordinance, a full fire sprinkler system shall be required, installed in accordance with NFPA 13D. This system shall include backflow protection by use of a double check valve.

Section R313.2 One- and two-family dwellings automatic fire sprinkler systems, shall be amended to read as follows:

Where a one- and two-family dwelling is to be located upon land that was located within the City of Elgin as of the adoption date of this ordinance, such one- and two-family dwelling shall include fire sprinkler protection in the basement area only. This fire sprinkler system can be part of the domestic water system, without backflow prevention, as long as the system is a looped system with no dead-ends in excess of 2 feet.

Exceptions:

1. When wood I-joists or open web trusses are used and protected with a ½-inch gypsum wallboard membrane, 5/8-inch wood structural membrane, or equivalent on the underside of the floor framing member.
2. Wood floor assemblies using dimensional lumber or structural composite lumber equal to or greater than 2-inch by 10-inch nominal dimension, or other approved floor assemblies demonstrating equivalent fire protection.
3. An automatic residential fire sprinkler system shall not be required when additions or alterations are made to existing one- and two-family dwellings that do not have an automatic residential fire sprinkler system installed.

In all such instances above, the general contractor shall be responsible for ensuring that the homeowner is advised of the availability and benefits of a full automatic fire sprinkler system (NFPA 13D compliant). Such notification shall be on a form provided by the City of Elgin and include the printed name and signature of the homeowner.

Where a one- and two-family dwelling is to be located upon land annexed to the City of Elgin after the adoption date of this ordinance, a full fire sprinkler system shall be required, installed in accordance with NFPA 13D. This system shall include backflow protection by use of a double check valve.

Section R314.3 Location, shall be amended to read as follows:

Smoke alarms shall be installed in the following locations:

1. In each sleeping room.
2. Outside each sleeping area within 15 feet of the bedroom doors.
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 level and without an intervening door between 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.

Section R315.1 Carbon monoxide alarms, shall be amended to read as follows:

For new construction, an approved carbon monoxide alarm shall be installed outside each separate sleeping area within 15 feet of the bedroom doors in dwelling units within which fuel-fired appliances are installed and in dwelling units that have attached garages.

Section R319.1 Address numbers, shall be amended to read as follows:

Buildings shall have approved address numbers, building numbers or approved building identification placed in a position that is plainly legible and visible from the street or road fronting the property. These numbers shall contrast with their background. Address numbers shall be Arabic numbers. Numbers shall be a minimum of 5" (102mm) high with a minimum stroke of ½" inch (12.7mm). 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.

Section R401.1 Applications, shall be amended to read as follows:

The provisions of this chapter shall control the design and construction of the foundation and foundation spaces for all buildings. In addition to the provisions of this chapter, the design and construction of foundations in flood hazard areas as established by Table R301.2(1) shall meet the provisions of Section R322. Any other provisions of this

chapter to the contrary notwithstanding, wood foundations shall not be permitted in the city.

Section R402.1 Wood foundations, Section R402.1.1 Fasteners, and Section R402.1.2 Wood Treatment, shall be deleted in their entirety.

Table R402.2 Minimum Specified Compressive Strength of Concrete (severe columns), shall be amended as follows:

TABLE R402.2			
MINIMUM SPECIFIED COMPRESSIVE STRENGTH OF CONCRETE			
	MINIMUM SPECIFIED COMPRESSIVE STRENGTH ^a (f' _c)		
TYPE OR LOCATION OF CONCRETE CONSTRUCTION	Negligible	Moderate	Severe
Basement walls, foundation walls, exterior walls and other vertical concrete work exposed to the weather	2,500	3,000 ^d	3,000 ^d
Basement slabs and interior slabs on grade, except garage floor slabs	2,500	2,500	3,500
Basement walls, foundation walls, exterior walls and other vertical concrete work exposed to the weather	2,500	3,000 ^d	3,000 ^d
Porches, carport slabs and steps exposed to the weather, and garage floor slabs.	2,500	3,000 ^{d,e,f}	4,000 ^{d,e,f}

For SI: 1 pound per square inch + 6.895 kPa.

a. Strength at 28 days psi.

b. See Table R301.2(1) for weathering potential.

c. Concrete in these locations that may be subject to freezing and thawing during construction shall be air-entrained concrete in accordance with Footnote d.

d. Concrete shall be air-entrained. Total air content (percent by volume of concrete) shall be not less than 5 percent or more than 7 percent.

e. See Section R402.2 for maximum cementitious materials content.

f. For garage floors with a steel troweled finish, reduction of the total air content (percent by volume of concrete) to not less than 3 percent is permitted if the specified compressive strength of the concrete is increased to not less than 4,000 psi.

Section R403.1 General, shall be amended to read as follows:

All exterior walls shall be supported on continuous solid or fully grouted masonry or concrete footings, or other approved structural systems which shall be of sufficient design to accommodate all loads to the soil within the limitations as determined from the character of the soil. Footings shall be supported on undisturbed natural soils or engineered fill.

R403.1.3.2 Slabs-on-ground with turned-down footings, shall be amended to read as follows:

Slabs-on-ground, cast monolithically, with turned-down footings, when approved, shall be a minimum twelve (12) inches wide and a minimum forty-two (42) inches below grade with two (2) number five (5) re-bar reinforcing continuous at top and bottom all around.

Where the slab is not cast monolithically with the footing, No. 3 or larger vertical dowels with standard hooks on each end shall be provided in accordance with Figure R403.1.3.2. Standard hooks shall comply with Section R611.5.4.5.

Exception: Garage foundations and slabs shall be constructed per Illustration A.

Section R403.2 Footings for wood foundations, shall be deleted in its entirety.

Section R403.3 Frost protected shallow foundations, section R403.3.1 Foundations adjoining frost protected shallow foundations, section R403.3.1.1 Attachment to unheated slab-on-ground structure, section R403.3.1.2 Attachment to heated structure, and section R403.3.2 Protection of horizontal insulation below ground, shall be deleted in their entirety.

Section R404.1.2.2 Reinforcement for foundation walls, shall be amended to read as follows:

Concrete walls shall be laterally supported at the top and bottom reinforced by four (4) number five rods. Two of the number five rods shall be located twelve (12) inches from the bottom of the wall and the second two of the number five rods shall be located twelve (12) inches below the top of the wall. Vertical reinforcement shall be provided in accordance with Table R404.1.2(2), R404.1.2(3), R404.1.2(4), R404.1.2(5), R404.1.2(6), R404.1.2(7) or R404.1.2(8). Vertical reinforcement for flat basement walls retaining 4 feet (1219 mm) or more of unbalanced backfill is permitted to be determined in accordance with Table R404.1.2(9). For basement walls supporting above-grade concrete walls, vertical reinforcement shall be the greater of that required by Tables R404.1.2(2) through R404.1.2(8) or by Section R611.6 for the above-grade wall. In buildings assigned to Seismic Design Category D₀, D₁ or D₂ concrete foundation walls shall also comply with Section R404.1.4.2.

Section R404.1.2.3.7.3 Wall openings, shall be amended to read as follows:

Vertical wall reinforcement shall be required at all foundation wall openings. Vertical reinforcement shall be number 4 rods and shall be placed within 6 inches of each side of the opening and shall either extend 12 inches beyond the opening or tie to the horizontal reinforcement with standard 90-degree hook, two bars. (See Illustration D).

Section R404.2 Wood foundation walls, section R404.2.1 Identification, section R404.2.2 Stud size, section R404.2.3 Height of backfill, section R404.2.4 Backfilling, section R404.2.5 Drainage and dampproofing, and section R404.2.6 Fastening, shall be deleted in their entirety.

Section R405.2, Wood foundations, section R405.2.1 Base, section R405.2.2 Vapor retarder, and section R405.2.3 Drainage system, shall be deleted in their entirety

Sections R406.3 Dampproofing of wood foundations, section R406.3.1 Panel joint sealed, section R406.3.2 Below grade moisture barrier, section R406.3.3 Porous fill, and section R406.3.4 Backfill, shall be deleted in their entirety.

Section R407.3 Structural requirements, shall be amended to read as follows:

The columns shall be restrained to prevent lateral displacement at the top and bottom ends. Wood columns shall not be less in nominal size than 4 inches by 4 inches (102 mm by 102mm) and steel columns shall not be less than 3-inch-diameter (76 mm) standard pipe or approved equivalent.

Section R502.1.4 Prefabricated wood I-joist, shall be amended to read as follows:

Structural capacities and design provisions for prefabricated wood I-joist shall be established and monitored in accordance with ASTM D 5055. Deflection shall be $L/480$ with maximum deflection of $\frac{1}{2}$ ". When wood I-joists are used for floor framing they shall be installed no more than 16 inches on center.

Section R502.1.8 Prefabricated wood open-web trusses, shall be created to read as follows:

When open-web trusses are used for floor framing they shall be installed no more than 16 inches on center.

Section R502.6.2 Joist Framing, shall be amended to read as follows:

Joist framing into the side of a wood girder shall be supported by approved framing anchors or an approved ledger strip.

Section 502.11.1 Design, shall be amended to read as follows:

Wood trusses shall be designed in accordance with approved engineering practices. The design and manufacture of metal plate connected wood trusses shall comply with ANSI/TPI1. The truss design drawings shall be prepared by a registered professional where required by the statutes of the jurisdiction in which the project is to be constructed in accordance with Section 106.1. Deflection shall be $L/480$ with maximum deflection of $\frac{1}{2}$ ".

Table R503.2.1.1(1) shall be amended to read as follows:

TABLE R503.2.1.1(1)
ALLOWABLE SPANS AND LOADS FOR WOOD STRUCTURAL PANELS FOR ROOF
AND SUBFLOOR SHEATHING AND COMBINATION SUBFLOOR UNDERLAYMENT^{a,b,c}
(Plywood structural panels are to be rated 4/5 ply)

SPAN RATING	MINIMUM NOMINAL PANEL THICKNESS (inches)	ALLOWABLE LIVE LOAD (psf) ^{h,i}		MAXIMUM SPAN (inches)		LOAD (pounds per square foot, at maximum span)		MAX. SPAN (inches)
		SPAN @ 16" o.c.	SPAN @ 24" o.c.	With edge support	Without edge support	Total load	Live load	
Sheathing ^e				Roof ^f				Subfloor ^l
16/0	1/2, 5/8	30	---	16	16	40	30	0
20/0	5/8	50	---	20	20	40	30	0
24/0	5/8	100	30	24	20 ^g	40	30	0
24/16	5/8	100	40	24	24	50	40	16
32/16	5/8	180	70	32	28	40	30	16 ^h
40/20	5/8	305	130	40	32	40	30	20 ^{h,i}
48/24	23/32,3/4,7/8	---	175	48	36	45	35	24
60/32	7/8	---	305	60	48	45	35	32
Underlayment, C-C plugged, single floor ^e				Roof ^f				Comb. Subfloor underlay ment ^k
16 o.c.	5/8	100	40	24	24	50	40	16 ^l
20 o.c.	5/8	150	60	32	32	40	30	20 ^{h,j}
24 o.c.	23/32, 3/4	240	100	48	36	35	25	24
32 o.c.	7/8	---	185	48	40	50	40	32
48 o.c.	1 3/32, 1 1/8	---	290	60	48	50	40	48

For SI 1 inch = 25.4 mm, 1 pound per square foot = 0.0479 kN/m²

- a. The allowable total loads were determined using a dead load of 10psf. If the dead load exceeds 10 psf, then the live load shall be reduced accordingly.
- b. Panels continuous over two or more spans with long dimension (strength axis) perpendicular to supports. Spans shall be limited to values shown because of possible effect of concentrated loads.
- c. Applies to panels 24 inches or wider.
- d. Lumber blocking, panel edge clips (one midway between each support, except two equally spaced between supports when span is 48 inches), tongue-and-groove panel edges, or other approved type of edge support.
- e. Includes Structural I panels in these grades.
- f. Uniform load deflection limitation: 1/180 of span under live load plus dead load, 1/240 of span under live load only.
- g. Maximum span 24 inches where ¾ inch wood finish flooring is installed at right angles to joists.
- h. Maximum span 24 inches where 1.5 inches of lightweight concrete of approved cellular concrete is placed over the subfloor.
- i. Unsupported edges shall have tongue-and groove joints or shall be supported with blocking unless minimum nominal ¼ inch thick underlayment with end and edge joints offset at least 2 inches or 1.5 inches of lightweight concrete or approved cellular concrete is placed over the subfloor, or ¾ inch wood finish flooring is installed at right angles to the supports. Allowable uniform live load at maximum span, based on deflection of 1/360 100 psf.
- j. Unsupported edges shall have tongue-and-groove joints or shall be supported by blocking unless nominal ¼

inch thick underlayment with end and edge joints offset at least 2 inches or ¾ inch wood finish flooring is installed at right angles to the supports. Allowable uniform live load at maximum span, based on deflection of 1/360 of span, is 100psf, except panels with a span rating of 48" on center are limited to 65 psf total uniform load at maximum span.

- k. Unsupported edges shall have tongue-and-groove joints or shall be supported by blocking unless nominal ¾-inch-thick underlayment with end and edge joints offset at least 2 inches or ¾-inch wood finish flooring is installed at right angles to the supports. Allowable uniform live load at maximum span, based on deflection of 1/360 of span, is 100 psf, except panels with span rating of 48 on center are limited to 65 psf total uniform load at maximum span.
- l. Allowable live load values at spans of 16" o.c. and 24" o.c. taken from reference standard APA E30, APA Engineered Wood Construction Guide. Refer to reference standard for allowable spans not listed in the table.

Section R507.2.3 Deck lateral load connection, shall be amended to read as follows:

The lateral load connection required by Section R507.2.2 shall be permitted to be in accordance with Figure R507.2.3. Hold-down tension devices shall be installed in not less than two locations per deck, and each device shall have an allowable stress design capacity of not less than 1500 pounds (6672 N). Decks that are 4 feet, or higher, above grade shall be submitted with architectural/structural plans.

Section R601.2 Requirements, shall be amended to read as follows:

Wall construction shall be capable of accommodating all loads imposed according to Section R301 and of transmitting the resulting loads to the supporting structural elements. Exterior walls that contain water supply and waste piping shall be framed to allow a minimum of R-13 insulation (or minimum required by Energy Conservation Code) between the piping and the exterior sheathing of the wall.

Table R602.3(5) Size, height and spacing of wood studs, shall be amended by adding the following to the end thereof:

Maximum spacing for bearing walls shall be sixteen (16) inches.

Exception: For garages under 490 square feet and sheds, maximum stud spacing can be twenty four (24) inches when supporting roof and ceiling only.

Section R602.3.2 Top plate, shall be amended to read as follows:

Exception: The exception, pertaining to a single top plate shall be deleted in its entirety.

Section R703.13 Corrugated siding, shall be created as follows:

The use of corrugated plastic siding material shall be prohibited.

Section R801.3 Roof drainage, shall be amended to read as follows:

In areas where expansive or collapsible soils are known to exist, all dwellings shall have a controlled method of water disposal from roofs that will collect and discharge all roof

drainage to the ground surface at least 5 feet (1524 mm) from foundation walls or to an approved drainage system. Roof gutters and down spouts shall be installed and maintained at all locations where water will run off the roof onto a walking or driving surface below. Down spout leaders shall not discharge across walking or driving surfaces.

Section R802.10.2 Design, shall be amended to read as follows:

Wood trusses shall be designed in accordance with accepted engineering practice. The design and manufacture of metal plate connected wood trusses shall comply with ANSI/TPI1. The truss design drawings shall be prepared by a registered professional where required by the statutes of the jurisdiction in which the project is to be constructed in accordance with Section 106.1. Maximum deflection shall be $L/240$

Section R902.1.1 Corrugated plastic or fiberglass roofing panels, shall be created to read as follows:

The use of corrugated plastic or fiberglass roofing panels shall be prohibited.

Section R1003.9.2 Spark arresters, shall be amended to read as follows:

Spark arresters shall be required on the chimney of all fireplaces designed to be capable of burning wood. Spark arrestors shall meet all of the following:

1. The net free area of the arrestor shall not be less than four times the net free area of the outlet of the chimney flue it serves.
2. The arrestor screen shall have heat and corrosion resistance equivalent to 19-gage galvanized steel or 24-gage stainless steel.
3. Openings shall not permit the passage of spheres having a diameter greater than $\frac{1}{2}$ inch (12.7 mm) nor block the passage spheres having a diameter less than $\frac{3}{8}$ inch (9.5 mm).
4. The spark arrestor shall be accessible for cleaning and the screen or chimney cap shall be removed to allow for cleaning of the chimney flue.

Section R1005.4.1 Spark arrestors factory-built chimney, shall be created as follows:

Spark arresters shall be required on the chimney of all fireplaces designed to be capable of burning wood. Spark arrestors shall meet all of the requirements of Section 1003.9.2.

Section M1201.2 Application, shall be amended as follows:

In addition to the general administration requirements of chapter 1 of the *International Residential Code 2012*, as amended by this Chapter 16.36, the administration provisions

of chapter 12 of the *International Residential Code 2012*, as amended by this Chapter 16.36, shall also apply to the mechanical requirements of chapters 13 through 24 of the *International Residential Code 2012*, as amended by this Chapter 16.36.

Section M1301.1 Scope, shall be amended to read as follows:

The provisions of chapter 13 of the *International Residential Code 2012*, as amended by this Chapter 16.36, shall govern the installation of mechanical systems not specifically covered in other chapters applicable to mechanical systems. Installations of mechanical appliances, equipment and systems not addressed by this code shall comply with the applicable provisions of Chapter 16.20 and Chapter 16.32 of the Elgin Municipal Code, 1976, as amended.

Section M1305.1.3 Appliances in attics, shall be amended to read as follows:

Attics containing appliances requiring access shall be provided with pull down stairs and a clear and unobstructed passageway large enough to allow removal of the largest appliance, but not less than 30 inches (762mm) high and 22 inches (559mm) wide and not more than 20 feet (6096mm) long when measured along the centerline of the passageway from the opening to the appliance. This passageway shall have continuous solid flooring in accordance with chapter 5 of the *International Residential Code 2012*, as amended by this Chapter 16.36, not less than 24 inches (610mm) wide. A level service space at least 30 inches (762mm) deep and 30 inches (762) wide shall be present along all sides of the appliance where access is required. The clear access opening dimensions shall be a minimum of 20 inches by 30 inches (508 mm by 762 mm), and large enough to allow removal of the largest appliance.

Exceptions:

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

Section M1307.5 Electrical appliances, shall be amended to read as follows:

Electrical appliances shall be installed in accordance with chapters 14, 15, 19, and 20 of the *International Residential Code 2012*, as amended by this Chapter 16.36, and Chapter 16.24 of the Elgin Municipal Code, 1976, as amended.

Section M1401.1 Installation, shall be amended to read as follows:

Heating and cooling equipment and appliances shall be installed in accordance with the manufacturer's installation instructions and the requirements of this code. Equipment

and appliance installation instructions shall be made available to the heating inspector upon request.

Section M1401.3 Sizing, shall be amended to read as follows:

Heating and cooling equipment and appliances shall be sized in accordance with ACCA Manual S based on building loads calculated in accordance with ACCA Manual J or other approved heating and cooling calculation methodologies. Heating and cooling loads shall be shown on permit plans. Equipment capacities, including heating, cooling and airflow at 0.5" s.p., shall be shown on the permit plans. Additionally, the supply air, return air, exhaust air, and outdoor ventilation air registers, grilles, and/or louvers locations, sizes and air quantities shall be shown on the permit plans.

Section M1406.2 Clearances, shall be amended to read as follows:

Clearance for radiant heating panels or elements to any wiring, outlet boxes and junction boxes used for installing electrical devices or mounting luminaires shall comply with Chapter 16.24 of the Elgin Municipal Code, 1976, as amended.

Section M1407.1 General, shall be amended to read as follows:

Electrical duct heaters shall be installed in accordance with the manufacture's installation instructions and Chapter 16.24 of the Elgin Municipal Code, 1976, as amended. Electrical furnaces shall be tested in accordance with UL 1996.

Section M1409.1.1 shall be created to read as follows:

Wall heaters venting to the exterior and drawing exterior air for combustion may be installed in existing buildings.

Section M1507.2.1 shall be created to read as follows:

All rooms containing bathtubs, showers, spas, and similar bathing fixtures shall be mechanically exhausted. In addition, all rooms containing toilets, lavatories and similar fixtures shall be mechanically exhausted. The exhaust rate from each of these rooms shall be five (5) air changes for every one (1) hour (one (1) air change every twelve (12) minutes). The exhaust duct shall be sized not less than the fan discharge size and vent directly outdoors via a roof cap, wall cap, or wall louver with insect screens when required.

Section M1601.1.01 Duct sizes, shall be created to read as follows:

Supply and return ducts shall be sized according to ACCA Manual D or SMACNA Installation Standards for Residential Heating and Air Conditioning Systems or other approved methods. In addition, for a residential air system, the main supply ducts shall be sized for an air velocity not to exceed one thousand (1,000) feet per minute. All

branch ducts shall be sized for an air velocity not to exceed six hundred (600) feet per minute. In supply air ducts transition fittings are required in all changes in duct size. Bullhead fittings are prohibited.

Section M1601.1.1 Aboveground duct systems, subparagraph 5, shall be amended to read as follows:

Gypsum products may be used as ducts or plenums, provided that the air temperature does not exceed 95 degrees Fahrenheit and exposed surfaces are not subject to condensation.

Section M1601.1.1 Aboveground duct systems, subparagraph 7.3, shall be amended to read as follows:

Stud wall cavities shall not convey return air from more than one room and/or one floor level.

Section M1601.1.1 Aboveground duct systems, subparagraph 8, shall be created to read as follows:

Flexible air ducts, both metallic and non-metallic, shall be listed and labelled to indicate conformance with the requirements of UL 181 for Class 0 or Class 1 flexible air ducts. Flexible air ducts shall not exceed ten (10) feet in length.

Section M1601.1.1 Aboveground duct systems, subparagraph 9, shall be created to read as follows:

Flexible air connectors, both metallic and non-metallic, shall be listed and labelled to indicate conformance with the requirements of UL 181 for Class 0 or Class 1 flexible air ducts. Flexible air ducts shall not exceed ten (10) feet in length.

Section M1601.1.1 Aboveground duct systems, subparagraph 10, shall be created to read as follows:

Non-metallic ducts and/or connectors shall not be installed in non-accessible areas of any dwelling.

Section M1601.1.1 Aboveground duct systems, subparagraph 11, shall be created to read as follows:

Where air diffusing supply registers are placed in the baseboard or immediately above on interior walls, air velocities shall not exceed four hundred (400) feet per minute. Where air grilles are placed in the baseboard or immediately above or in the floor on exterior walls, air velocities shall not exceed five hundred (500) feet per minute. Where placement of grilles is above head level, velocity shall be from five hundred (500) to seven hundred (700) feet per minute. All living quarters shall be supplied with at least

five (5) air changes per hour (one (1) air change every twelve (12) minutes) and all supply grilles shall be directly connected to either the heating unit or the main duct line. Velocity at the return air grille is not to exceed four hundred (400) feet per minute.

Table M1601.1.1(2) Gages of metal ducts and Plenums used for heating or cooling, shall be amended to read as follows:

Duct Size	Galvanized Gage No.
Round Duct	
6" diameter or less	30 GA
6" - 14" diameter	28 GA
over 14" in diameter	26 GA
Rectangular ducts	
13" or less	26 GA
14" - 30"	24 GA

Section M1601.1.1.1 shall be created to read as follows:

Supply ducts for dwellings erected on concrete slabs shall be installed from the furnace to the registers embedded and anchored in the slab on which the dwelling is erected. In two and three story dwellings, heating outlets shall be located not more than twelve (12) inches as measured from the top of the grille to the finished floor in that portion of a dwelling utilizing concrete slab.

Section M1601.4 Installation, shall be amended to read as follows:

Duct installation shall comply with Sections M1601.4.1 through M1601.4.9. Heating supply air shall be distributed to all rooms.

Exception: Interior spaces mechanically vented via other systems.

Section M1602.1.1 shall be created to read as follows:

Return air for warm air furnaces is required from all rooms except as prohibited by Section M1602.2 of this chapter. Central returns are prohibited.

Section M1901.3 Prohibited locations, shall be amended to read as follows:

Cooking appliances designed, tested, listed and labelled for use in commercial occupancies shall not be installed within dwelling units or within any area where domestic cooking operations occur without obtaining a permit for such installations. Approval of such installations will require that a properly engineered exhaust system be installed

Section M2005.3 Electric water heaters, shall be amended to read as follows:

Electric water heaters shall also be installed in accordance with the applicable provisions of Chapter 16.24 of the Elgin Municipal Code, 1976, as amended.

Section M2101.2 System drain down, shall be amended to read as follows:

Hydronic piping systems shall be installed to permit the system to be drained. When the system drains to the plumbing drainage system, the installation shall conform to the requirements of Chapter 16.20 of the Elgin Municipal Code, 1976, as amended.

Section M2101.3 Protection of potable water, shall be amended to read as follows:

The potable water system shall be protected from backflow in accordance with the provision listed in Chapter 16.20 of the Elgin Municipal Code, 1976, as amended.

Chapter 22, Special Piping and Storage Systems, shall be deleted in its entirety.

Section G2406.2 (303.3) Prohibited locations, shall be amended as follows:

Exceptions 3 and 4 shall be deleted in their entirety.

Section G2407.5.1 (304.5.1) Standard Method, shall be amended to read as follows:

The minimum required volume shall be 100 cubic feet per 1,000 BTU/H ($4.8\text{m}^3/\text{kw}$).

Section G2410.2 (309.2) Connections, shall be amended to read as follows:

Electrical connections between gas utilization equipment and the building wiring, including the grounding of the equipment, shall conform to Chapter 16.24 of the Elgin Municipal Code, 1976, as amended.

Section G2415.2 CSST, shall be deleted in its entirety.

Section G2445.5 (621.5) Room or space volume, shall be amended to read as follows:

The aggregate input rating of all unvented appliances installed in a room or space shall not exceed 10BTU/H per cubic foot ($0.105\text{kw}/\text{m}^3$) volume of such room or space. Where the room or space in which the equipment is installed is directly connected to another room or space by a doorway, archway or other opening of comparable size that cannot be closed, the volume of such adjacent room or space shall be permitted to be included in the calculations.

Section G2447.2 (623.2) Prohibited location, shall be amended to read as follows:

Cooking appliances designed, tested, listed and labelled for use in commercial occupancies shall not be installed within dwelling units or within any area where domestic cooking operations occur without obtaining a permit for such installations. Approval of such installations will require that a properly engineered exhaust system be installed.

Chapters 26 through 43, inclusive, shall be deleted in their entirety.

Appendix A, Sizing and Capacities of Gas Piping, shall be deleted in its entirety.

Appendix B, Sizing of Venting Systems Serving Appliances Equipped With Draft Hoods, Category I Appliance and Appliances Listed For Use and Type B Vents, shall be adopted in its entirety.

Appendix C, Exit Terminals of Mechanical Draft and Direct Vent Venting System, shall be adopted in its entirety.

Appendix D, Recommended Procedure for Safety Inspection of an Existing Appliance, shall be adopted in its entirety.

Appendix E, Manufactured Housing Used as Dwellings, shall be deleted in its entirety.

Appendix F, Radon Control Methods, shall be adopted in its entirety with the exception of the following specified amendments:

Section AF 103.4.10 Crawl Space Access, shall be amended as follows:

Access doors and other openings or penetrations between basements and adjoining crawl spaces shall be closed, gasketed or otherwise filled to prevent air leakage. These requirements may be eliminated if a 2-inch thick concrete slab is installed which will meet the requirements of this appendix for concrete slab installation.

Section AF103.6.1 Vent pipe, shall be amended to read as follows:

A minimum 3-inch-diameter (76mm) PVC or equivalent gas-tight pipe shall be embedded vertically into the sub-slab aggregate or other permeable material before the slab is cast. A "T" fitting or equivalent method shall be used to ensure that the pipe opening remain within the sub-slab permeable material. Alternatively, the 3-inch pipe shall be inserted directly into an interior perimeter drain tile loop or through a sealed sump cover where the sump is exposed to the sub-slab aggregate or connected to it through a drainage system.

Appendix G, Swimming Pools, Spas and Hot Tubs, shall be adopted in its entirety with the exception of the following specified amendments:

Section AG102 Definitions, Swimming Pool, shall be amended to read as follows:

Any structure intended for swimming or recreational bathing that has the ability to contain water over 24 inches (610mm) deep. This includes in-ground, aboveground and on ground swimming pools, hot tubs and spas.

Appendix H Patio Covers, shall be adopted in its entirety.

Appendix I, Private Sewage Disposal, shall be deleted in its entirety.

Appendix J, Existing Buildings and Structures, shall be adopted in its entirety.

Section AJ501.7 Ceiling height, shall be amended to read as such:

Spaces created in existing basements, such as recreation rooms, laundry rooms, study rooms, and bathrooms, shall have a ceiling height of not less than 6 feet 8 inches. Obstructions may project to within 6 feet 4 inches of the basement floor. All other habitable spaces created in existing basements shall have a minimum ceiling height of 7 feet 0 inches. Existing finished ceiling heights in nonhabitable spaces in basements shall not be reduced.

Section AJ601.4 Ceiling height, shall be amended to read as such:

Spaces created in existing basements, such as recreation rooms, laundry rooms, study rooms, and bathrooms, shall have a ceiling height of not less than 6 feet 8 inches. Obstructions may project to within 6 feet 4 inches of the basement floor. All other habitable spaces created in existing basements shall have a minimum ceiling height of 7 feet 0 inches. Existing finished ceiling heights in nonhabitable spaces in basements shall not be reduced.

Appendix K, Sound Transmission, shall be deleted in its entirety.

Appendix L, Permit Fees shall be deleted in its entirety.

Appendix M, Home Day Care-R-3 Occupancy, shall be deleted in its entirety.

Appendix N, Venting Methods, shall be deleted in its entirety.

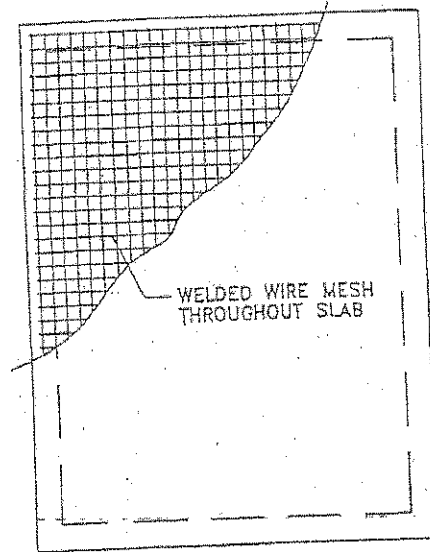
Appendix O, Gray water Recycling Systems, shall be deleted in its entirety.

Appendix P, Sizing of Water Piping Systems, shall be deleted in its entirety.

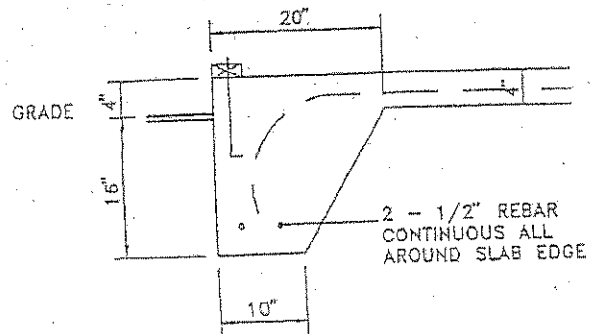
Appendix Q, ICC International Residential Code Electrical Provisions/National Electrical Code Cross Reference shall be deleted in its entirety.

16.36.030 ILLUSTRATIONS

Buildings and Construction



GRADE BEAM SLAB



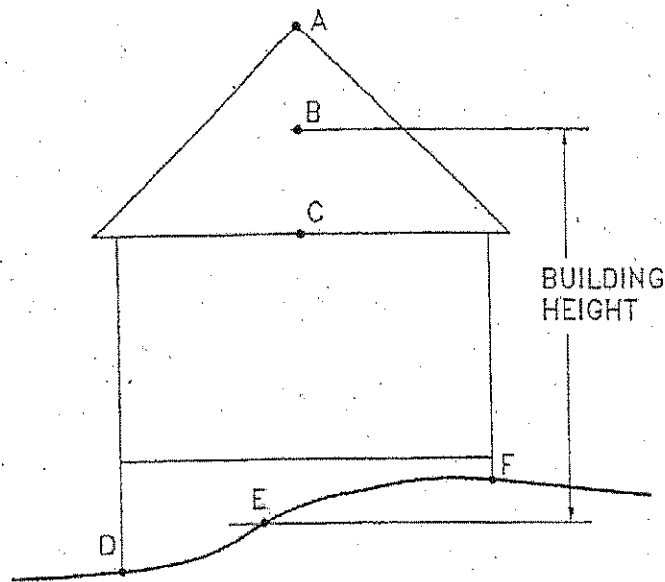
(Illustration A)

16.36-12

(Elgin 5/11/98)

BUILDING HEIGHT

"Building height" means the vertical distance measured from the established average grade at the foundation to the highest point of the underside of the ceiling beams, in the case of the flat roof; to the deck line of a mansard roof; and to the main level of the underside rafters between the eaves and the ridge of a gable, hip, or gambrel roof. Chimneys, spires, towers, elevator penthouses, tanks, and similar projections other than signs shall not be included in calculating the height.



Point A is the ridge of the roof.

Point B is the average level of the underside of the rafters between the eaves and the ridge of the roof.

Point C is the underside of the rafters at the eave.

Point D is the minimum grade at the foundation.

Point E is the average grade at the foundation.

Point F is the maximum grade at the foundation.

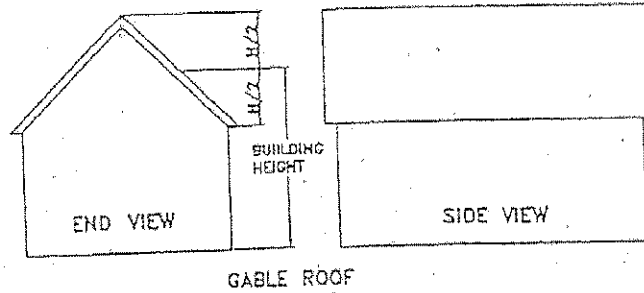
(Illustration B)

(Begin 3/11/90)

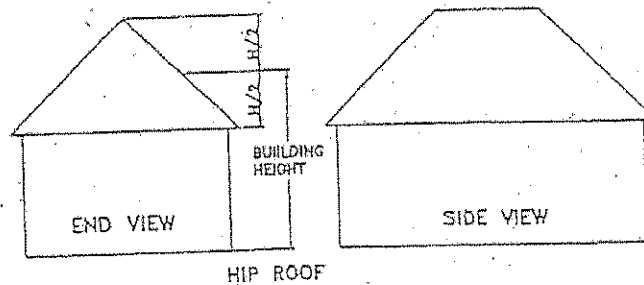
16.36-13

BUILDING HEIGHTS

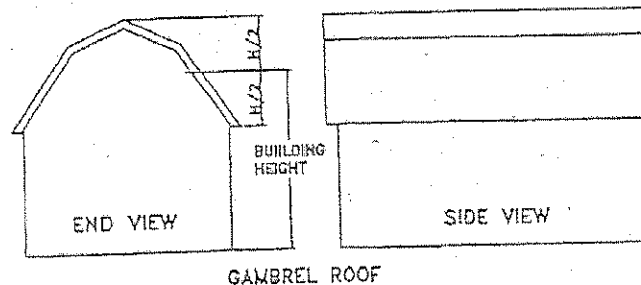
Building height is the vertical distance measured from the established grade to the highest point of the roof surface for flat roofs; to the deck line of mansard roofs; and to the average height between eaves and ridge for gable, hip and gambrel roofs.



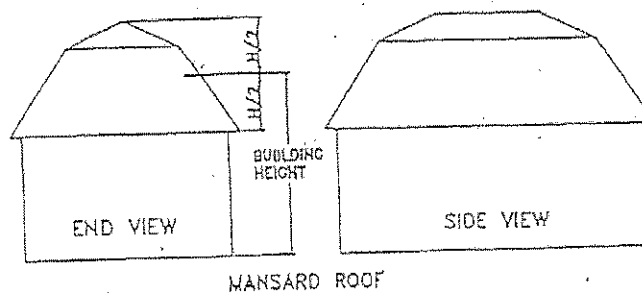
GABLE ROOF



HIP ROOF



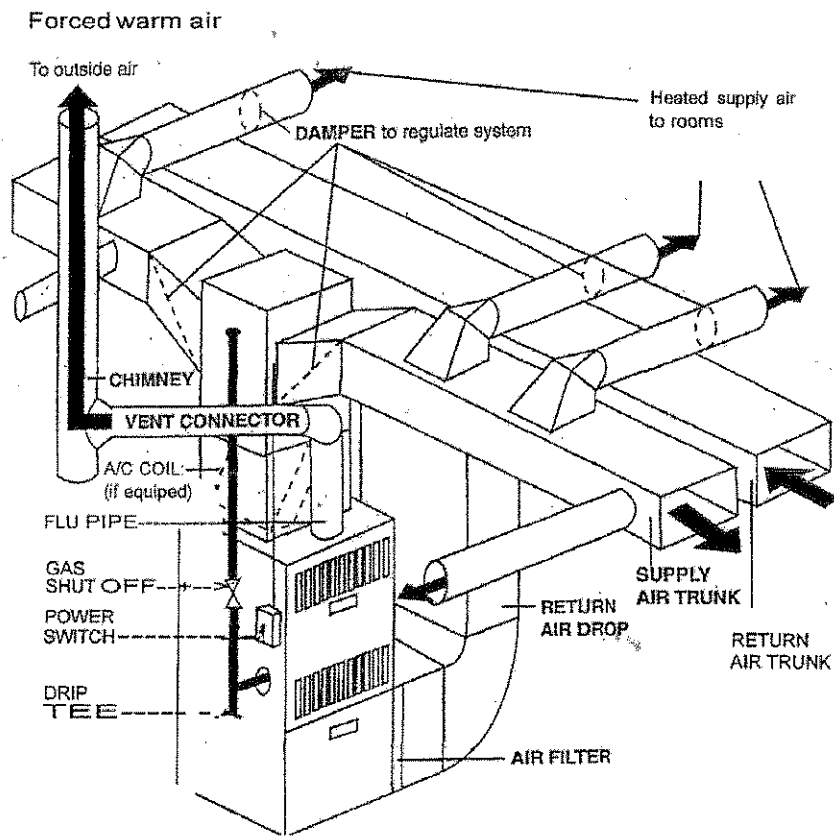
GAMBREL ROOF



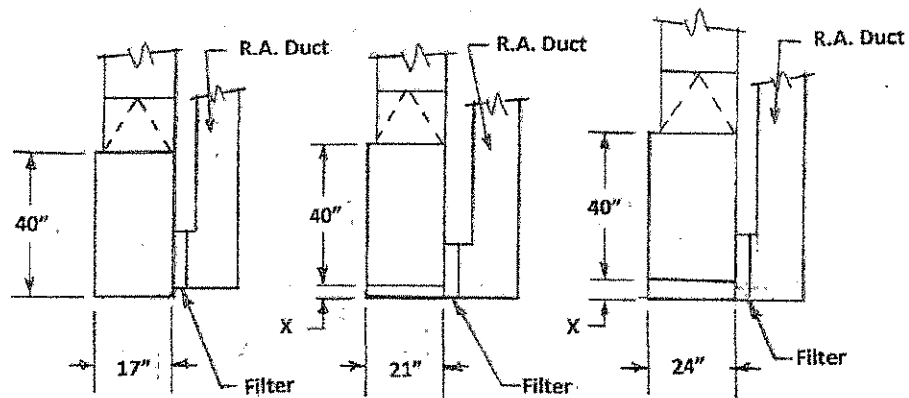
MANSARD ROOF

One and Two Family Dwelling Code
Buildings and Construction

One- and Two-Family Dwelling Code
Furnace and Ductwork Installation
(Illustration E)



**One- and Two-Family Dwelling Code
Return Air Ductwork and Filter Sizing
(Illustration F)**



	3 Ton & Under	4 Ton & Above	5 Ton
	Filter - 16 x 25 x 1	Filter - 20 x 25 x 1	Filter 24 x 25 x 1
40 MBH	R.A. Duct - 24 x 8		
60 MBH	R.A. Duct - 24 x 8		
80 MBH	R.A. Duct - 24 x 10	R.A. Duct - 24 x 10	
100 MBH		R.A. Duct - 24 x 12	R.A. Duct - 24 x 12
120 MBH			R.A. Duct - 24 x 14
		X = 4" accessory plenum, side and bottom return	X = 8" acc. plenum, side and bott. return

16.36.040 CONFLICTS WITH OTHER PROVISIONS

When a provision of this chapter conflicts with any other provision of the Elgin Municipal Code regulating the same subject matter, either as presently adopted or to be adopted or amended in the future, the more stringent or restrictive provision shall apply.

Section 3. That all ordinances or parts of ordinances in conflict with the provisions of this ordinance be and are hereby repealed.

Section 4. That this ordinance shall be in full force and effect immediately after its passage in the manner provided by law.

David J. Kaptain, Mayor

Presented: October 24, 2012

Passed:

Vote: Yeas Nays:

Recorded:

Published:

Attest:

Kimberly A. Dewis, City Clerk