

**VILLAGE OF DOWNERS GROVE**  
**Report for the Village Council Meeting**  
**6/13/2017**

<b>SUBJECT:</b>	<b>SUBMITTED BY:</b>
Adoption of 2015 ICC Building and Fire Codes	Stan Popovich, AICP Director of Community Development

**SYNOPSIS**

Ordinances have been prepared adopting the International Code Council's (ICC) 2015 series of building and fire codes.

**STRATEGIC PLAN ALIGNMENT**

The goals for 2015-2017 include *Exceptional Municipal Services* and *Steward of Financial, Environmental and Neighborhood Sustainability*.

**FISCAL IMPACT**

N/A

**RECOMMENDATION**

Continued discussion at the June 20, 2017 Village Council meeting

**BACKGROUND**

The Village's current building codes were adopted in October 2009. The building codes which were adopted at that time were the 2006 edition of the International Code Council (ICC) codes. Staff is proposing that the Village update to the 2015 edition of the ICC's building and fire codes. The specific codes targeted for adoption are:

- *2015 International Residential Code (IRC)* – governs construction of one- and two-family residential buildings and townhomes
- *2015 International Building Code (IBC)* – governs construction of all other use types
- *2015 International Property Maintenance Code (IPMC)* – governs maintenance of all existing buildings and properties
- *2015 International Fire Code (IFC)* – governs construction and maintenance of life safety systems in commercial and multi-family buildings
- *2015 International Fuel Gas Code (IFGC)* - governs installation of fuel-gas piping systems and fuel gas appliances
- *2015 International Mechanical Code (IMC)* - governs mechanical systems utilized to provide control of environmental conditions and related processes within buildings
- *2015 International Swimming Pool and Spa Code (ISPSC)* - governs aquatic recreation facilities, pools and spas

Staff has undertaken an extensive review process to examine the 2015 codes and determine differences between the current 2006 codes and local amendments with the proposed 2015 codes. In exploring the code changes, staff emphasized the following key concepts and strategies:

- Align with Long Range Plan goals
- Create clear and user friendly code requirements
- Reduce the number of local code amendments (42% reduction in the IRC and 55% reduction in IBC)
- Maintain consistency with existing ordinance provisions
- Maintain and provide code provisions that address local construction practices
- Align Village regulations with comparable communities

The principal change between the 2006 and 2015 IRC is the requirement to install fire sprinklers in newly constructed single family house. Some neighboring communities in the immediate area have removed this requirement from their building codes. A list of communities and fire districts in Illinois requiring sprinklers is attached.

Below is a brief summary of the major changes included in the 2015 model codes that are proposed for adoption.

#### 2015 International Residential Code:

- All new one- and two-family dwellings and townhomes are required to have fire sprinklers. This does not affect existing one- and two-family dwellings undergoing renovations or additions.
- All exposed engineered wood floor framing needs to be covered with gypsum board unless sprinklers are provided. This would require a layer of drywall on the ceiling of an unfinished basement.
- When finishing an existing basement an emergency escape window is only required if there is a sleeping room.
- Smoke alarms for remodeling and additions are now allowed to be wirelessly interconnected.
- Smoke alarms required throughout existing dwelling unit as part of a remodeling project are allowed to be battery operated rather than hard-wired for power.

#### 2015 International Building Code:

- Cross-Laminated Timber (CLT) is now permitted within exterior walls required to be of noncombustible construction, much in the same manner as fire-retardant-treated wood is allowed. The CLT must be covered on the exterior side with approved materials. CLT is regulated as Type IV construction, historically reserved for heavy timber.
- Excavation near foundations of adjacent structures now have basic requirements for providing protection to the adjacent structure.
- Certain Institutional occupancies have added sub-classifications to differentiate between the needs of individuals capable of self-preservation and those incapable, especially in situations such as assisted living facilities.
- Relaxed requirements for: Areas of Refuge in stairwells, number of allowable basement stories in podium style buildings, and dead end corridor length. However, developers would still be required to comply with the Illinois Accessibility Code.

#### 2015 International Property Maintenance Code (IPMC)

- No major changes

#### 2015 International Fire Code:

- Remove the restrictive amendments imposing limitations on waste oil and fresh oil storage.
- Require fire sprinklers in all new commercial buildings of all uses. This does not affect the triggers for the installation of fire sprinklers in existing commercial buildings.
- Require periodic evaluation of the fire sprinkler system in warehouse buildings to ensure it is adequately designed for any changes to what is being stored and the manner in which it is stored.
- Limit the use of NFPA 13R fire sprinkler systems (systems designed for residential buildings four stories and below that offer less protection than that provided for commercial structures) to buildings of Types I or II construction. This improves the quality of protection in residential buildings constructed of wood.
- Clarify an existing amendment which requires smoke detectors in residential buildings to be part of the building's fire alarm system.

#### 2015 International Fuel Gas Code (IFGC)

- No major changes

#### 2015 International Mechanical Code (IMC)

- No major changes

#### 2015 International Swimming Pool and Spa Code (ISPSC)

- This is a new separate code book. In the 2006 family of ICC codes, swimming pools and spas were included in the IRC code as an appendix. The 2015 family of ICC codes creates a separate code book for swimming pools and spas.
- No major changes to the technical aspects of the code.

For the first time the National Multi-family Housing Council (NMHC), National Apartment Association, Building Owners and Managers Association, and the National Association of Home Builders are encouraging state and local jurisdictions to consider adopting the 2015 ICC Codes. The NMHC has stated that, "Many of the changes benefit apartment and commercial construction and taken as a whole these positive changes more than offset the changes that might increase construction costs."

On May 24, 2017, staff held an informational meeting regarding the proposed adoption of the 2015 ICC family of codes. Staff invited architects, builders and contractors to attend the meeting which highlighted some of the key technical changes from the existing codes to the 2015 codes. Fourteen individuals attended and participated in the discussion.

## **ATTACHMENTS**

Ordinances

Communities and Jurisdictions requiring sprinklers

Sprinkler background information

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ORDINANCE NO. \_\_\_\_\_

**AN ORDINANCE ADOPTING THE 2015  
INTERNATIONAL MECHANICAL CODE AND AMENDMENTS THERETO**

BE IT ORDAINED by the Village Council of the Village of Downers Grove in DuPage County, Illinois, as follows: (Additions are indicated by shading/underline; deletions by ~~strikeout~~):

**Section 1. That Section 7.1700.ART. is hereby amended to read as follows:**

**7.1700.ART. Article XVII. INTERNATIONAL MECHANICAL CODE**

**Section 2. That Section 7.1701. is hereby amended to read as follows:**

**7.1701. 2015 International Mechanical Code - Adoption.**

The International Code Council ~~2006~~2015 International Mechanical Code, as promulgated by the International Code Council ("ICC"), being particularly the ~~2006~~2015 edition thereof, is hereby adopted for the purpose of establishing rules and regulations for the construction, alteration, removal, demolition, equipment, use and occupancy, location and maintenance of buildings and structures, including permits and penalties required for such purposes. The same is adopted in its entirety, save and except such portions as are hereinafter deleted, modified or amended, and is, together with such amendments, incorporated as fully as if set out at length herein, and shall control in the construction of all buildings and structures therein regulated within the Village. Said International Mechanical Code, as modified and amended, may be referred to for all purposes as the "Downers Grove International Mechanical Code" or the "Mechanical Code". At least one copy of said Code, including such amendments to it as shall be enacted, shall be filed in the office of the Village Clerk, and additional copies shall be available in the Community Development Department of the Village.

**Section 3. That Section 7.1702. is hereby amended to read as follows:**

**7.1702. International Mechanical Code - Amendments.**

The deletions from and modifications and amendments to the International Mechanical Code as referred in this Article are the following:

**Section 101.1** is amended by deleting the same in its entirety and substituting in lieu thereof the following:

**101.1 Title.** These regulations shall be known as the Mechanical Code of the Village of Downers Grove, hereinafter referred to as "this code".

**Section 101.2** is amended by adding the following at the end of the first paragraph:

"The installation of fuel gas distribution piping and equipment, fuel gas-fired appliances and fuel gas-fired appliance venting systems shall be regulated by the International Fuel Gas Code and this code"

~~**Section 101.2** is further amended to add the following exception"~~

~~———— Detached one- and two- family dwellings and multiple single- family dwellings (townhouses) not more than three stories high with separate means of egress and their accessory structures shall also~~

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~~comply with Chapters 12 through 23 of the International Residential Code.~~

**Section 102.5** is amended by deleting the same in its entirety.

**Section 102.6** is amended by deleting the same in its entirety.

**Section 102.7** is amended by deleting the same in its entirety.

**Section 103** is amended by deleting the same in its entirety and are addressed in Chapter 7, Article I of the Downers Grove Municipal Code.

**Section 104** is amended by deleting the same in its entirety and addressed in Chapter 7, Article II of the Downers Grove Municipal Code.

**Section 106 with the Exception of Section 106.2** is amended by deleting the same in its entirety and addressed in Chapter 7, Article III of the Downers Grove Municipal Code.

**Section 108 with the Exception of Section 108.7** is amended by deleting the same in its entirety and addressed in Chapter 7, Article X of the Downers Grove Municipal Code.

**Section 109** is amended by deleting the same in its entirety and are addressed in Chapter 7, Article IX of the Downers Grove Municipal Code.

**Section 201.3** is amended by deleting the same in its entirety and substituting in lieu thereof the following:

**201.3 Terms defined in other codes.** Where terms are not defined in this code and are defined in the International Building Code, National Electrical Code, International Fire Code, International Fuel Gas Code or the State of Illinois Plumbing Code such terms shall have meanings ascribed to them as in those codes.

~~**Section 202** is amended by adding the following definitions:~~

~~———— **Combination Fire/Smoke Damper.** A listed device installed in ducts and air transfer openings designed to close automatically upon the detection of heat and resist the passage of flame and smoke. The device is installed to operate automatically and be controlled by a smoke detection system.~~

~~———— **Fire Damper.** A listed device installed in ducts and air transfer openings designed to close automatically upon detection of heat and to restrict the passage of flame. Fire dampers are classified for use in either static systems that will automatically shut down in the event of a fire, or in dynamic systems that continue to operate during a fire. A dynamic fire damper is tested and rated for closure under an elevated-temperature air flow.~~

~~———— **Make Up Air.** The amount or percentage of fresh air delivered or mixed with recirculating air on a normal cycle of air by volume.~~

~~———— **Occupiable Space.** An enclosed space intended for human activities, excluding those spaces intended primarily for other purposes, such as storage rooms and equipment rooms, that are only intended to be occupied occasionally and for short periods of time.~~

~~**Section 202** is further amended by amending the following definition:~~

~~———— **Smoke Damper.** A listed device that is designed to resist the passage of air and smoke. The device is arranged to operate automatically, controlled by a smoke detection system, and when required, is capable of being positioned from a remote command station.~~

**Section 301.3** is amended by adding the following at the end of the paragraph:

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"and the applicable provisions of this code."

**Section 301.7** is amended by deleting the words "ICC Electrical Code" and substituting in lieu thereof the following:

———"National Electrical Code as adopted and amended by the Village"

**Section 301.8301.11** is amended by deleting the words "International Plumbing Code" and substituting in lieu thereof the following:

"State of Illinois Plumbing Code as adopted and amended by the Village"

**Section 301.13** is amended by deleting the exception.

**Section 301.13.1** is deleted in its entirety.

**Section 306.3.1** is amended by deleting the words "ICC Electrical Code" and substituting in lieu thereof the following:

———"National Electrical Code as adopted and amended by the Village"

**Section 306.4.1** is amended by deleting the words "ICC Electrical Code" and substituting in lieu thereof the following:

———"National Electrical Code as adopted and amended by the Village"

**Section 306.5.2** is amended by deleting the words "ICC Electrical Code" and substituting in lieu thereof the following:

———"National Electrical Code as adopted and amended by the Village"

**Section 307.2.2** is amended by deleting the words "International Plumbing Code" and substituting in lieu thereof the following:

———"State of Illinois Plumbing Code as adopted and amended by the Village"

**Section 308.8** is amended by adding the following at the end of the paragraph:

———"and the International Residential Code."

**Section 308.10** is amended adding the following at the end of the paragraph:

———"and the International Residential Code."

**Section 511.1.1** is amended by deleting the words "ICC Electrical Code" in the exceptions and substituting in lieu thereof the following:

———"National Electrical Code as adopted and amended by the Village"

**Section 512.2** is amended by deleting the words "International Plumbing Code" and substituting in lieu thereof the following:

"State of Illinois Plumbing Code as adopted and amended by the Village"

**Section 513.11** is amended by deleting the words "ICC Electrical Code" and substituting in lieu thereof the following:

———"National Electrical Code as adopted and amended by the Village"

**Section 513.12.1** is amended by deleting the words "ICC Electrical Code" and substituting in lieu thereof the following:

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~~—————"National Electrical Code as adopted and amended by the Village"~~

~~Section 602.2.1.1~~ is amended by deleting the words "ICC Electrical Code" and substituting in lieu thereof the following:

~~—————"National Electrical Code as adopted and amended by the Village"~~

~~Section 602.3~~ is amended by deleting the same in its entirety and substituting in lieu thereof the following:

**602.3 Stud cavity and joist space plenums.** Stud wall cavities and the spaces between solid floor joists shall not be utilized for supply or return air plenums serving habitable spaces.

~~Section 603.4.1~~ is hereby added as follows:

~~—————603.4.1 Minimum fasteners.~~ Round metallic ducts shall be mechanically fastened by means of at least three sheet metal screws or rivets spaced equally around the joint.

~~Section 607.1.1.1~~ is hereby added as follows:

~~—————607.1.1.1 Ducts that penetrate non fire-resistance rated assemblies.~~ The space around a duct penetrating a non fire-resistance rated assembly shall comply with Section 716.6.3 of the International Building Code.

~~Section 607.5.6~~ is hereby added as follows:

~~—————607.5.6 Exterior walls.~~ Ducts and air transfer openings in fire-resistance rated exterior walls required to have protected openings in accordance with Section 704.14 of the International Building Code shall be protected with listed fire dampers installed in accordance with their listing.

~~Section 908.5~~ is amended by deleting the words "International Plumbing Code" and substituting in lieu thereof the following:

"State of Illinois Plumbing Code as adopted and amended by the Village"

~~Section 1002.1~~ is amended by deleting the words "International Plumbing Code" and substituting in lieu thereof the following:

"State of Illinois Plumbing Code as adopted and amended by the Village"

~~Section 1002.2~~ is amended by deleting the words "International Plumbing Code" and substituting in lieu thereof the following:

"State of Illinois Plumbing Code as adopted and amended by the Village"

~~Section 1002.3~~ is amended by deleting the words "International Plumbing Code" and substituting in lieu thereof the following:

"State of Illinois Plumbing Code as adopted and amended by the Village"

~~Section 1005.2~~ is amended by deleting the words "International Plumbing Code" and substituting in lieu thereof the following:

"State of Illinois Plumbing Code as adopted and amended by the Village"

~~Section 1006.6~~ is amended by deleting the words "International Plumbing Code" and substituting in lieu thereof the following:

"State of Illinois Plumbing Code as adopted and amended by the Village"

~~Section 1008.2~~ is amended by deleting the words "International Plumbing Code" and substituting in lieu

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thereof the following:

"State of Illinois Plumbing Code as adopted and amended by the Village"

**Section 1009.3** is amended by deleting the words "International Plumbing Code" and substituting in lieu thereof the following:

"State of Illinois Plumbing Code as adopted and amended by the Village"

**Section 1101.4** is amended by deleting the words "International Plumbing Code" and substituting in lieu thereof the following:

"State of Illinois Plumbing Code as adopted and amended by the Village"

~~**Section 1106.3** is amended by deleting the words "ICC Electrical Code" and substituting in lieu thereof the following:~~

~~—————"National Electrical Code as adopted and amended by the Village"~~

~~**Section 1106.4** is amended by deleting the words "ICC Electrical Code" and substituting in lieu thereof the following:~~

~~—————"National Electrical Code as adopted and amended by the Village"~~

**Section 1201.1** is amended by deleting the words "International Plumbing Code" and substituting in lieu thereof the following:

"State Plumbing Code as adopted and amended by the Village"

~~**Section 1204.1** is amended by deleting the exception.~~

**Section 1206.2** is amended by deleting the words "International Plumbing Code" and substituting in lieu thereof the following:

"State of Illinois Plumbing Code as adopted and amended by the Village"

**Section 1206.3** is amended by deleting the words "International Plumbing Code" and substituting in lieu thereof the following:

"State of Illinois Plumbing Code as adopted and amended by the Village"

**Section 1301.6** is hereby added as follows:

**1301.6 State of Illinois Regulations.** All tank installations and removals shall also comply with the applicable regulations of the Office of the State Fire Marshall.

**Section 1305.2.1** shall be deleted in its entirety and substituting in lieu thereof the following:

**1305.2.1 Flood hazard.** All fuel oil pipe, equipment and appliances located in flood hazard areas shall be located above the design flood elevation.

**Section 1401.2** is amended by deleting the words "International Plumbing Code" and substituting in lieu thereof the following:

"State of Illinois Plumbing Code as adopted and amended by the Village"

**Section 4.** That all ordinances or parts of ordinances in conflict with the provisions of this ordinance are hereby repealed.

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**Section 5.** That this ordinance shall be in full force and effect from and after its passage and publication in the manner provided by law.

\_\_\_\_\_

Mayor

Passed:

Published:

Attest: \_\_\_\_\_

Village Clerk

## Communities and Fire Districts Requiring Sprinklers

No.	CITY	DATE	COMMERCIAL/RESIDENTIAL SQUARE FEET
1	Long Grove (Municipality)	April, 1988	0/13D
2	Barrington Fire Protection District	September, 1997	0/13D
3	Lake Barrington	December, 1997	0/13D
4	Wheeling	July, 2000	0/13D plus manufactured homes
5	Clarendon Hills	August, 2000	2000/13D
6	Village of Barrington	December, 2000	0/13D
7	Park Ridge	March, 2001	0/13D
8	West Dundee	August, 2001	4,000/13D - all 1-2 family new con.
9	Glenside	2001	13D/3,000 square feet
10	Hoffman Estates	January, 2002	1,000 for all use groups & 13D
11	Glen Ellyn	March, 2002	0/13D
12	Round Lake Beach	March, 2002	0/13D
13	Streamwood	June, 2002	1,000 Commercial/13D
14	LaGrange Park	Aug-03	0/A, E, H, I R1, R2; 2,000/13D
15	Mount Prospect	June, 2003	0/13D + condo conversions & mfg. homes
16	Berkeley	November, 2003	A,E,H,P,R,S - 0/13D / M,B,I - 3000
17	Rolling Meadows	2003	4,000 square feet
18	Matteson Fire Department	January, 2004	0/13D
19	Countryside Fire Protection District	March, 2004	0/13D
20	Huntley Fire Protection District	July, 2004	0/13D
21	North Maine Fire Protection District	July, 2004	0/13D
22	Indian Creek (Countryside FPD)	Feb-00	0/13D
23	Skokie	October, 2004	5,000/13D
24	Long Grove Fire Protection District	November, 2004	13D
25	Hickory Hills	January, 2005	0/13D/multi-family retrofit
26	Justice	February, 2005	0/13D
27	Des Plaines	March, 2005	0/13D
28	Libertyville (Municipality)	March, 2005	1,000/13D
29	Sunnycrest FPD (Flossmoor)	January, 2005	13D
30	Bedford Park Fire Department	July, 2005	0/13D
31	Roselle	Dec-08	13D
32	St. Charles/Countryside FPD	August, 2005	On Hold
33	Oak Forest	August, 2005	0/13D/ +50% Commercial
34	Lincolnwood	October, 2005	5,000/13D
35	Libertyville Fire Protection District	November, 2005	0/13D
36	Bridgeview	November, 2005	0/13D, mfg homes,
37	River Forest	March, 2006	5000/13D + 50 % single-family
38	Glenwood	June, 2006	0/13D + 50% assessed valuation retrofit/ownership changes
39	Palos Hills	August, 2006	0/13D/ Apartment to Condo
40	Villa Park	August/October, 2006	(Hold) 1,500/13D/End 2013
41	Prospect Heights	December, 2006	0/13D
42	Northbrook	February, 2007	5,000/13D plus Townhomes
43	Bellwood	January, 2007	0/13D + 50% Retrofit Apartment to Condo
44	Lake Bluff	March, 2007	0/13D, 75% Additions
45	Lake Zurich Rural Fire Protection District	April, 2007	13D
46	Lincolnshire/Riverwoods Fire Protection District	May, 2007	13D
47	Orland FPD	2007	Unincorporated No Water Supply, 5,000
48	Highwood	August, 2007	0/13D
49	Lisle-Woodridge FPD	October, 2007	5,000 sq. ft.
50	Alsip	October, 2007	0/13D
51	Palatine Rural FPD	November, 2007	0/13D
52	Chicago Ridge	December, 2007	0/13D

## Communities and Fire Districts Requiring Sprinklers

53	Pleasantview FPD	January, 2008	Single exit subdivision
54	Country Club Hills	January, 2008	0/13D
55	Park Forest	September, 2008	0-13D
56	Newport Township FPD (Wadsworth)	January, 2009	0/13D
57	Green Oaks	February, 2009	13D
58	Riverside	March, 2009	13D
59	Palos Heights FPD	June, 2009	13D
60	Lake Zurich	September, 2009	13D
61	Palos Fire Protection District	October, 2009	13D/5,000†
62	Crest Hill	December, 2009	0 sqft commercial/ all 13D
63	Normal	January, 2010	13D
64	Burlington Fire Protection District	April, 2010	13D
65	Riverwoods	April, 2010	13D
66	Wilmette	May, 2010	13D/Lightweight Construction
67	Aurora	May, 2010	13D/5,000†
68	Forest Park	May, 2010	0 Sq Ft / 13D
69	St Charles	July, 2010	13D effective 2012
70	Oak Brook	January, 2011	13D
71	Palos Park	March, 2011	NFPA 13D, 5,000†
72	Schaumburg	May, 2011	13D, 1,000 Sq Ft, High Rise Retrofit, Apartment to Condo
73	Central Stickney FPD	June, 2011	0/13D, 2009 IFC with Amendments
74	Glencoe	Jan., 2012	0 sq. ft./13D
75	Flossmoor	March, 2012	13D
76	Norwood Park FPD	April, 2012	2009 IRC/ICC /13D/ 1000 Sq.Ft.
77	Harwood Heights	April, 2012	2009 ICC/IRC/13D/1000 Sq.Ft.
78	Norridge	April, 2012	2009 ICC/IRC/13D/1000 Sq.Ft.
79	South Holland	April, 2012	2009 IRC/13D
80	Manhattan FPD	April, 2012	13D
81	Wood Dale	May, 2012	13D
82	Gurnee	June, 2012	0/13D, 2012 IRC
83	Blue Island	July, 2012	13D
84	Milan	August, 2012	13D, 2012 IRC
85	Vernon Hills	October, 2012	1,000 square feet/13D Lightweight Construction/ 2012 IRC All 13D
86	Elgin	October, 2012	2012 IRC/Future Plats
87	Homewood	October, 2012	5,000 sq. ft.
88	Warren Waukegan FPD	November, 2012	0/13D 2012 IRC
89	Niles	January, 2013	13D
90	Hazelcrest	February, 2013	13D
91	Roselle Fire District	March, 2013	13D
92	Westchester	November, 2013	13D
93	Addison	December, 2013	2012 IRC/13D
94	Riverdale	January, 2014	13D
95	Evanston	February, 2014	2012 IRC/13D LSC 101 2012
96	Elmwood Park	September, 2014	2012 IRC/NFPA 13D
97	Westmont	October, 2014	2012 IRC/NFPA 13D/2016
98	Western Springs	October, 2014	2012 IRC/13D
99	Barrington Countryside FPD	October, 2014	0/13D 2012 IBC
100	Brookfield	January, 2015	2015 IRC/13D
101	Oak Park	January, 2015	2009 IRC/13D

## Sprinkler Background Information

### General Information

- Residential fire sprinklers are designed for life safety, not property protection
- New homes are typically not safer than older homes because new homes tend to be constructed with lightweight materials, have open floor plans so smoke spreads more rapidly and new furnishings are typically synthetic materials
- Since 2009, model building codes have required fire sprinklers in one and two family dwellings
- Some insurance companies offer discounts for fire sprinklers

### Sprinkler system costs

Reported costs of residential fire sprinklers in new single family home construction vary depending on the source and region of the country:

- In 2013, the Northern Illinois Fire Sprinkler Advisory Board (NIFSAB) reported that costs averaged \$2.38 per square foot.
- In 2015, the Village of Westmont collected quotes from qualified sprinkler contractors as part of their 1-year grace period procedures. During that year, 14 applicants opted out of installing residential sprinkler systems and submitted quotes. Their data for these homes which ranged in size from 2,841 sq.ft to 5,866 sq.ft is as follows:
  - Cost range (per sq. ft.): \$1.69 - \$3.68
  - Cost range (per system): \$7,400 - \$13,170
- In 2016, the National Association of Homebuilders (NAHB) reported that the average cost per system nationwide was about \$6,000.

### What is a complete residential sprinkler system?

Complete systems typically include sprinkler coverage in all habitable rooms, including but not limited to kitchens, family rooms, basements, and bedrooms. Sprinkler protection is not required in small bathrooms, closets, garages, porches, unused attics and crawl spaces and concealed spaces.

Sprinkler system elements are:

- Sprinkler heads
- Supply lines
- Shut-off valves
- Back-flow devices (to protect domestic water)
- Pressure gauge
- Water flow switch and local alarm bell (optional)
- Outside Horn and Strobe (optional)

### What happens if there is a fire and the house is equipped with sprinklers?

Sprinklers only respond to heat, not smoke. Unlike in movies, sprinklers do not all activate together; only the sprinkler closest to the fire will activate. In approximately 90% of home fires, the fire is controlled by a single sprinkler head, flowing at 13 gallons per minute.

The intent of a single family sprinkler system is to control the fire, allowing occupants time to escape; complete extinguishment is not the intended purpose of a home sprinkler system. When functioning properly, a home sprinkler system will keep the fire under control and prevent it from spreading. After firefighters arrive, they will perform clean up operations and turn off the water supply to the sprinkler system, to prevent any additional water damage.

### Fire and Sprinkler Statistics

Data compiled by the National Fire Incident Reporting System within FEMA identify the following statistics on fires and sprinklers.

- 83% of fire deaths occur in one and two family dwellings
- The risk of dying in a home fire decreases by about 80% when fire sprinklers are present
- The risk of dying in a home fire decreases by about 50% with smoke alarms alone
- In communities which require fire sprinklers (some for at least 15 years) they have documented: 80% fewer civilian deaths, 70% less property damage, and 65% fewer firefighter injuries
- 90% of the time fires are contained by the operation of a single fire sprinkler

### History of fires in single family home

In the past five years (July 2012 through July 2017) the Village of Downers Grove has experienced 38 fires in single family homes.

- 17 resulted in damages of \$100,000 or more
- 13 resulted in damages of \$10,000 to \$99,999
- 8 resulted in damages under \$10,000
- 1 fire resulted in a fatality