

VILLAGE OF DOWNERS GROVE
Report for the Village
10/3/2023

SUBJECT:	SUBMITTED BY:
Adoption of 2021 ICC Building and Fire Codes	Stan Popovich, AICP Director of Community Development

SYNOPSIS

Ordinances have been prepared adopting the International Code Council's (ICC) 2021 series of building and fire codes.

An Ordinance has also been prepared updating Chapter 7 of the Municipal Code concerning general building permit submission requirements.

STRATEGIC PLAN ALIGNMENT

The goals for 2023-2025 include *Exceptional Municipal Services* and *Steward of Financial, Environmental and Neighborhood Sustainability*.

FISCAL IMPACT

N/A

RECOMMENDATION

UPDATE & RECOMMENDATION

This item was discussed at the September 12, 2023 Village Council meeting. Staff recommends approval on the October 3, 2023 Active Agenda.

BACKGROUND

The Village's current building codes were adopted in August, 2017. The building codes which were adopted at that time were the 2015 edition of the International Code Council (ICC) codes. Staff is proposing that the Village update to the 2021 edition of the ICC's building and fire codes. The specific codes targeted for adoption are:

- *2021 International Residential Code (IRC)* – governs construction of one- and two-family residential buildings and townhomes
- *2021 International Building Code (IBC)* – governs construction of all other use types

- *2021 International Property Maintenance Code (IPMC)* – governs maintenance of all existing buildings and properties
- *2021 International Fire Code (IFC)* – governs construction and maintenance of life safety systems in commercial and multi-family buildings
- *2021 International Fuel Gas Code (IFGC)* - governs installation of fuel-gas piping systems and fuel gas appliances
- *2021 International Mechanical Code (IMC)* - governs mechanical systems utilized to provide control of environmental conditions and related processes within buildings
- *2021 International Swimming Pool and Spa Code (ISPSC)* - governs aquatic recreation facilities, pools and spas
- *2020 National Electric Code (NEC)* - governs installation of electrical wiring and equipment
- *2015 NFPA 101 Life Safety Code* – governs existing and new buildings in regard to safety to life.

The Village also follows three State mandated codes:

- 2018 International Energy Conservation Code (IECC) (*currently adopted edition by the State*)
- State of Illinois Plumbing Code
- State of Illinois Accessibility Code

Staff has undertaken an extensive review process to examine the 2021 codes and determine differences between the current 2015 codes and local amendments with the 2021 codes. In exploring the code changes, staff emphasized the following concepts and strategies:

- Protect health, safety and welfare of Downers Grove occupants
- Align with Long Range Plan goals including sustainability
- Create clear and user friendly code requirements
- Reduce the number of local code amendments
- Maintain consistency with existing ordinance provisions
- Maintain and provide code provisions that address local construction practices
- Align Village regulations with comparable communities
- Maintain ISO / BCEGS score to the benefit of resident's insurance rates

In 2017, the Village amended the 2015 base code to eliminate the requirement to install fire sprinklers in newly constructed single family homes. The current proposal maintains this amendment (fire sprinklers in newly constructed single family homes are not required.) Additional information concerning residential sprinklers and a list of communities and fire districts in Illinois requiring sprinklers is attached.

Below is a brief summary of the highlighted changes in the 2021 model codes that are proposed for adoption.

2021 International Residential Code (IRC)

- Includes provisions for building-integrated photovoltaic systems including roof panels and shingles
- Requires radon testing compliance reports for new single family construction only. This is not required for additions or renovations.
- Requires sound transmission compliance testing and reports for new townhome developments as townhomes have similar sound challenges as apartments and condominiums.
- Provides shipping container and tiny house regulations
- Requires solar ready zones for new single family home construction

2021 International Building Code (IBC)

- Distilleries and breweries can be classified as less hazardous
- Added exiting requirements for escape/puzzle rooms
- Updated heavy timber regulations
- Updated required stairwell illumination standards
- Efficiency dwelling sizes have been reduced

2021 International Property Maintenance Code (IPMC)

- A structural analysis for an existing building is further defined.
- Emergency escape and rescue openings required to be maintained.

2021 International Fire Code (IFC)

- Consolidates all fire code requirements into the IFC, for clarity
- Removes restrictive fire sprinkler requirements for Group U structures
- Prohibit indoor fireworks/pyrotechnics
- Require increased fire sprinkler coverage for electric vehicle charging areas

2021 International Fuel Gas Code (IFGC)

- Residential cooking appliances must be approved for domestic use
- All replacement appliances must be vented in accordance with the requirements for new appliances

2021 International Mechanical Code (IMC)

- Requires continuous operation of exhaust system in nail salons
- Updated exiting requirements for machine rooms

2021 International Swimming Pool and Spa Code (ISPSC)

- Proposed Amendment to require a safety barrier fence around all pools

2020 National Electric Code (NEC)

- Surge protective device required for service of all dwelling units
- Emergency disconnects required on exterior of dwelling unit
- Expanded GFCI and AFCI requirements
- Proposed Amendment to delete aluminum and copper-clad aluminum as conductor materials
- Copper only from service point into structure

2015 NFPA 101 Life Safety Code

- Adopting the 2015 version to match the Illinois Office of the State Fire Marshal's code
- Amended fire sprinkler requirements to match the Village's Residential Code

With regard to the three state mandated codes, staff is not proposing any amendments to the State adopted 2018 International Energy Conservation Code or State Accessibility Code. The staff is aware that the State may adopt the 2021 version of the IECC in the near future. Once the State determines the effective date of the 2021 IECC update, the staff will begin administering that code edition.

The staff is proposing amendments to the State Plumbing Code. The amendments require approval from the Illinois Department of Public Health (IDPH) and are not effective until both the Village and IDPH approve them. The proposed amendments are as follows:

- Require plumbing and irrigation controllers to bear the WaterSense label (water efficiency)

- Require water service pipes to be at least 66-inches in depth to match current Village standards
- Require the water meter to be inside the building
- Disallow wet venting
- Disallow PEX tubing as well as CPVC as water distribution piping

Staff is also proposing minor amendments to Chapter 7 of the Municipal Code. These updates are principally related to permit submittal requirements and processes that changed due to the Village's implementation of an online permit system.

ATTACHMENTS

Council Questions

Fire Sprinkler Information Sheet

Ordinances

Council Questions

Question: We currently require heat detectors to be installed in a Garage. Should we consider requiring heat detectors throughout the house? Also, should we consider requiring homeowners to install a heat detector in the garage if pulling a permit, similar to our current approach for smoke detectors?

The best fire safety in residential buildings would be sprinklers, then smoke detectors in the house and a heat detector in the garage. When the Village chose not to require residential sprinklers in 2017, a compromise was made that called for the installation of a heat detector in the garage. Heat detectors are preferable over smoke detectors in the garage due to the possibility of vehicle exhaust causing false alarms in the garage. Smoke detection is preferable in the living portion of the house because it provides an earlier warning to the occupants. While requiring homeowners to install heat detection in an existing garage as part of a permit application would provide additional protection, it would also add additional cost, labor and time. At this time, Staff is continuing to recommend an amendment which requires smoke detection inside the home as part of all residential interior renovation permits.

Question: How will Village staff review new submissions to ensure additional energy efficiency requirements in the 2021 IECC have been met?

The architect or design professional is responsible for providing this documentation to the Village. This documentation can be provided either on the drawings or on an Energy Compliance documentation report.

Question: Why is PEX tubing inferior to copper piping for water distribution?

Pex tubing (cross-linked polyethylene) is inferior to copper as it is less durable and has a shorter lifespan due to the following reasons: 1) The chlorine in the water inside PEX pipes speed-up the brittle oxidative failure of cross-linked polyethylene. This failure can lead to leakage and pipes bursting. 2) PEX cannot be exposed to light or UV for a long period before deteriorating. 3) PEX is vulnerable to rodent attacks within the wall which can cause both leakage and contamination. In addition, the EPA has published studies documenting research noting concerns of PEX piping water distribution quality due to leaching of contaminants and odor. https://hero.epa.gov/hero/index.cfm/reference/details/reference_id/3859182

Question: Which section of current IRC defines solar panels?

The 2015 IRC defines requirements for Solar Energy Systems in Section R324.

Question: Where is a vapor retarder required? What is considered conditioned space?

Vapor retarder is required in all conditioned spaces and per local amendment, in garages, utility buildings and other accessory structures. Conditioned space is an area, room or space that is enclosed within the building thermal envelope and that is directly or indirectly heated or cooled. vapor retardants are not required for carports, driveways, walks, patios and other unconditioned spaces.

Question: Village staff currently has discretion as to where a 6'-0" construction fence is located on a property. Should we define the requirements for a new home vs. an addition?

The discretion that the ordinance affords allows Village staff has worked well. Staff has been able to allow existing fencing to serve as construction fencing as well as better define fencing limits on a case by case basis. Staff's preference is to maintain this discretion to better serve the community.

Residential Fire Sprinkler Information Sheet

- The 2021 International Residential Code requires residential fire sprinklers in newly constructed single-family homes (~.4% of the Downers Grove housing market)
- In Illinois, 121 communities require that fire sprinklers be installed in newly constructed single family homes. Adjacent communities include Clarendon Hills, Glen Ellyn, Lemont Fire District, Lisle Woodridge Fire District, Oak Brook, Western Springs, Westmont, etc. For a complete list of communities from the Northern Illinois Fire Sprinkler Advisory Board, please visit the following link: <https://firesprinklerassoc.org/13d-communities/>
- Fire sprinklers improve life safety by allowing more time to escape a home fire
- Cost Estimate: ~ 1.5% - 2% of construction costs
 - 4,000 sq ft home ~ \$15,000-\$20,000 assuming a 1.5" incoming water service
- Residential sprinkler coverage requirements are limited compared to commercial sprinkler coverage requirements. In addition, residential sprinklers do not require 24/7 monitoring or annual inspections.

Information from the **Northern Illinois Fire Advisory Sprinkler Board** is available on-line and summarized below:

- Northern Illinois Fire Advisory Sprinkler Board <https://firesprinklerassoc.org/nifsab/>
- National Fire Protection Association <https://www.nfpa.org/>
- Fire sprinklers, in addition to smoke alarms, reduce the chances of fire death by 80%
- Benefits:
 - Reduced injuries/deaths
 - Reduced water damage from a fire (~10X less)
 - Reduced property damage from a fire (~70% less)
 - Reduced firefighter injuries
- The fire sprinkler(s) closest to the fire activate; in 85-90% of home fires, only a single sprinkler activates

Information from the **National Association of Home Builders** is available on-line and summarized below:

<https://www.nahb.org/advocacy/top-priorities/building-codes/fire-sprinklers/NAHB-Response-to--NFPA-Fire-Sprinkler-Initiative>

- The National Association of Home Builders notes that fires are more likely to occur in older homes, residential fire sprinklers are not designed to save property, smoke alarms work and sprinklers are not cost effective.



VILLAGE OF DOWNERS GROVE

COUNCIL ACTION SUMMARY

INITIATED: Village Attorney **DATE:** September 19, 2023
 (Name)

RECOMMENDATION FROM: _____ **FILE REF:** _____
 (Board or Department)

NATURE OF ACTION:

- ☒ Ordinance
- ☐ Resolution
- ☐ Motion
- ☐ Other

STEPS NEEDED TO IMPLEMENT ACTION:

Motion to Adopt "AN ORDINANCE ADOPTING THE 2021 MECHANICAL GAS CODE AND AMENDMENTS THERETO", as presented.



SUMMARY OF ITEM:

Adoption of this ordinance shall adopt the 2021 International Mechanical Code and amendments thereto.

RECORD OF ACTION TAKEN:

ORDINANCE NO. ____

**AN ORDINANCE ADOPTING THE 2021
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 redline/underline; deletions by ~~strikeout~~):

Section 1. That Section 7.1701 is hereby amended to read as follows:**Sec 7.1701 ~~2015~~2021 International Mechanical Code - Adoption**

The International Code Council ~~2015~~2021 International Mechanical Code, as promulgated by the International Code Council ("ICC"), being particularly the ~~2015~~2021 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.

(Ord. 5632, Amended, 08/12/2017; 5082, Amended, 10/06/2009; 4801, Amended, 08/01/2006, "code services" to "community development"; Ord. 4665, Add, 04/05/2005)

Section 2. That Section 7.1702. is hereby amended to read as follows:**Sec 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 102.2** is amended by deleting the same in its entirety.~~

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

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

Section 102.8. Illinois Plumbing Code is hereby added as follows:

Section 102.8. Illinois Plumbing Code. Whenever a reference is made to the International Plumbing

Code, such reference shall be deemed to refer to the applicable section of the current Illinois State Plumbing Code, as adopted by the Village of Downers Grove.

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

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

Section 107 is amended by deleting the same in its entirety and addressed in DGMC Chapter 7, Article IV of the Downers Grove Municipal Code.

Section 108 is amended by deleting the same in its entirety and addressed in DGMC Chapter 7, Article IV of the Downers Grove Municipal Code.

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

Section 113 is amended by deleting the same in its entirety and addressed in DGMC Chapter 7, Article IX of the Downers Grove Municipal Code.

Section 114 is amended by deleting the same in its entirety and addressed in DGMC Chapter 7, Article IX of the Downers Grove Municipal Code.

Section 115 with the Exception of Section 115.6 is amended by deleting the same in its entirety and addressed in DGMC Chapter 7, Article X of the Downers Grove Municipal Code.

Section 116 is amended by deleting the same in its entirety and addressed in DGMC Chapter 7, Article V 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 DGMC 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 DGMC 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 301.3** is amended by adding the following at the end of the paragraph:
"and the applicable provisions of this Code."~~

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

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 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 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.

Chapter 15 Referenced Standards is amended by deleting the words "International Plumbing Code" and substituting in lieu thereof the following:

"Current Illinois State Plumbing Code as adopted by the Village.

(Ord. 5632, Amended, 08/12/2017; Ord. 5082, Renumbered, 10/06/2009; Ord. 4665, Add, 04/05/2005)

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

Section 4. That this ordinance shall be in full force and effect on January 1, 2024.

Mayor

Passed:

Published:

Attest: _____

Village Clerk