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**Office of the Director of Development/
Assistant City Administrator**

TO: Mayor, Board of Aldermen and City Administrator Hanson

FROM: Andy Hixson, DoD/ACA

DATE: June 21, 2018

SUBJECT: Building Codes Update

Staff Report

ISO has completed its analysis of the building codes adopted by the City of Ballwin and the effort put forth to enforce our codes. The resulting ISO Building Code Effectiveness Grading Schedule Survey (BCEGS) Classification is a Class Ten (10) for family residential property and a Class Ten (10) for commercial and industrial property. This is a regression from the former Class Five (5) for family and residential and a Class Four (4) for commercial and industrial property. The biggest reason for this is the fact that the City is still on the 2006 Building Codes. Our ISO rating is on hold until pending action by the Board is taken on updating our codes.

Metro West has already switched to the 2015 and St. Louis County is in process with their adoption date yet to be determined.

Building Commissioner Mike Roberts has reviewed the 2015 Building Codes and created a revised version we would like to have the Board review. His memo is attached. We have also reached out to the Home Builders Association (HBA) on updating to the 2015 Building Codes and their feedback has been taken into consideration. We have submitted a plan of action and have until December 2018, to implement it.

There is no action that needs to be taken at this time; this is just for Board review.

To: Andy Hixson
From: Mike Roberts
RE: Code Adoptions

I have been studying the 2015 International Codes and the 2014 National Electrical Code for the purpose of adopting them to upgrade the City of Ballwin's construction codes. If these codes are not updated, Ballwin's ISO rating will be negatively affected. These codes are debated at the national level and updated every three years by building officials, design professionals and the construction industry. As such, as the building commissioner I am hesitant to recommend many amendments to the code. In the past, Ballwin has adopted these codes without amendment. After reviewing the 2015 versions of the International Building Code, the International Plumbing Code, the International Mechanical Code, the International Fuel Gas Code and the 2014 National Electrical Code, I recommend that they all be adopted without amendment.

One additional subject I would like to discuss is the adoption of the 2015 International Property Maintenance Code. Ballwin currently uses the Ballwin Housing Code that was designed in 1973 and amended over the years. All of our inspectors were required to be certified in the International Property Maintenance Code yet we don't use it. The IPMC is a good code that covers most of what the housing code does but also has more current regulations. Most cities in the area have adopted some version of the IPMC. I believe adopting this code would better fit the rest of the International Codes we have in place.

The Home Builders Association of St. Louis and Eastern Missouri has presented a list of proposed amendments to the 2015 Residential Code that they feel should be implemented. After

reviewing these amendments, I found that I agreed with some and disagreed with others.

I have studied other jurisdictions around the St Louis area and the amendments they made to the code. After doing so, I am comfortable in making the recommendation for the following list of amendments. Most of these amendments will keep us current with the normal practices of this department currently without compromising safety.

Chapter 11 is the section that deals with energy efficiency. The HBA has requested many modifications to this particular section of the code. Our program has always been in place to provide safety to the residents and visitors of Ballwin. This department has never inspected for these requirements because they have nothing to do with safety. Therefore, I feel it would be better to just remove the section from our code instead of having something in place that is not enforced by the City of Ballwin.

The requirements for residential sprinklers were removed due to state statute. I therefore recommend they be amended as follows to meet current state law.

In one instance I have recommended a more restrictive amendment than the code requires. Since the city has a sewer lateral repair program in place, we have a vested interest in making sure these laterals do not fail. The sewer lateral program requires that all repairs be made with schedule 40 PVC. Pipe thinner than this has a tendency to be easily damaged with holes punched in it from rocks or can become misshapen when the backfill is installed around it. Prohibiting pipe thinner than Schedule 40 PVC or its equivalent on new construction or repairs not on the program will help protect these laterals and hopefully keep the repairs for these installs to a minimum. This will have a positive impact on our lateral repair program.

If you have any questions, please feel free to ask.

Respectfully submitted,
Mike Roberts

Code: 2015 International Residential Code

Revise as follows:

R302.5.1 Opening protection. Openings from a private garage directly into a room used for sleeping purposes shall not be permitted. Other openings between the garage and residence shall be equipped with solid wood doors not less than 1 3/8 inches (35 mm) in thickness, solid or honeycomb-core steel doors not less than 1 3/8 inches (35 mm) thick, or 20-minute fire-rated doors, ~~equipped with a self-closing device.~~

Reason:

A self-closing device on a garage door will be an unnecessary nuisance to homeowners. These devices may result in injuries to small children or the elderly, and contribute to the escaping of family pets. Additionally, for homeowners using wheelchairs or other mobility-assistance devices, entering or exiting through these doors may prove difficult because the self-closing function may not allow for the doors to stay open for the amount of time necessary.

Previously, the reasoning provided for this code provision was that fires that originate in the garage could pass through openings into the house. However, no reliable data or statistics exists on the number of fires that originated in the garage and resulted in the fire spreading into the interior of the dwelling. Additionally, it has been argued nationally, that these devices prevent the spread of carbon monoxide from vehicles and the byproducts produced by the burning thermoplastics. However, there is no link to statistical substantiation to need for closures on garage openings. To this day, there are no reports that support that the addition of door closures on doors between the dwelling and the garage will reduce the number of fires spreading into the dwelling, prohibit the flow of carbon monoxide into the dwelling, or reduce the number of false carbon monoxide alarms.

Cost Impact:

Materials alone for this code provision may increase costs by \$150, if this amendment is not incorporated into the code.

R309.5 Fire sprinklers. Private garages shall be protected by fire sprinklers where the garage wall has been designed based on Table 302.1(2), Footnote a, and the homeowner has opted to purchase a fire sprinkler system for their residence, as per Missouri Revised Statutes 67.281. Sprinklers in garages shall be connected to an automatic sprinkler system that complies with Section P2904. Garage sprinklers shall be residential sprinklers or quick-response sprinklers, designed to provide a density of 0.05 gpm/ft². Garage doors shall not be considered obstructions with respect to sprinkler placement

Reason:

Compliance with Missouri State Law

R313.1 Townhouse automatic fire sprinkler systems. An automatic residential fire sprinkler system shall be installed in *townhouses*, in accordance with §67.281 of the Missouri Revised Statutes.

Reason:

Compliance with Missouri State Law

R313.2 One- and two-family dwellings automatic fire systems. ~~An automatic residential fire sprinkler system shall be installed in one and two family dwellings.~~ A builder of a single-family dwelling or residence or multi-unit dwellings of four or fewer units shall offer to any purchaser on or before the time of entering into the purchase contract the option, at the purchaser's cost, to install or equip fire sprinklers in the dwelling, residence, or unit. Notwithstanding any other provision of law to the contrary, no purchaser of such a single-family dwelling, residence, or multi-unit dwelling shall be denied the right to choose or decline to install a fire sprinkler system in such dwelling or residence being purchased by any code, ordinance, rule, regulation, order, or resolution by any county or other political subdivision. Any county or other political subdivision shall provide in any such code, ordinance, rule, regulation, order, or resolution the mandatory option for purchasers to have the right to choose and the requirement that builders offer to purchasers the option to purchase fire sprinklers in connection with the purchase of any single-family dwelling, residence, or multi-unit dwelling of four or fewer units.

Reason:

Compliance with Missouri State Law

Delete Chapter 11 Energy Efficiency

Reason:

No safety benefit.

M1503.4 Makeup air required. Exhaust hood systems capable of exhausting in excess of 400 600 cubic feet per minute (0.19 m³/s) shall be mechanically or naturally provided with makeup air at a rate approximately equal to the exhaust air rate. ~~Such makeup air systems shall be equipped with not less than one damper. Each damper shall be a gravity damper or an electrically operated damper that automatically opens when the exhaust system operates. Dampers shall be accessible for inspection, service, repair and replacement without removing permanent construction or any other ducts not connected to the damper being inspected, serviced, repaired or replaced.~~ Such makeup air systems shall be equipped with a means of closure and shall be automatically controlled to start and operate simultaneously with the exhaust system.

Reason:

This provision increasing the requirement for makeup air would lower the threshold to the point that almost all kitchens would require a makeup air system. All of the provisions associated with installing such a system, including connections to the exhaust system, electrical interlocking, fan requirements, and a conditioner, would dramatically increase the cost of construction with little to no health or safety benefit for the homeowner.

P2801.8 Water heater seismic bracing. In Seismic Design Categories D₀, D₁ and D₂ ~~and townhouses in Seismic Design Category C~~, water heaters shall be anchored or strapped in the upper one-third and in the lower one-third of the appliance to resist a horizontal force equal to one-third of the operating weight of the water heater, acting in any horizontal direction, or in accordance with the appliance manufacturer’s recommendations.

Reason:

Typical construction in the St. Louis region finds water heaters in basements where there is usually not a wall to which the appliance can be secured.

P3002.1 Piping within buildings. Drain, waste and vent (DWV) piping in buildings shall be as indicated in Tables P3002.1(1) and P3002.1(2) except that galvanized wrought- iron or galvanized steel pipe shall not be used underground and shall be maintained not less than 6 inches (152 mm) above ground. Allowance shall be made for the thermal expansion and contraction of plastic piping. Use of pipe thinner than schedule 40 PVC or its equivalent in the sewer lateral is prohibited.

Reason:

Protect sewer laterals for homes in Ballwin and to bring in line with requirements of current sewer lateral repair program.

CLIMATIC AND GEOGRAPHIC DESIGN CRITERIA

Ground Snow Load	Wind Speed ^d MPH	Seismic Design Category ^f	Weathering ^a	Frost Line Depth	Termite ^c	Winter Design Temp ^e	Ice Barrier Underlayment Required ^b	Flood Hazard	Air Freezing Index ^g	Mean Annual Temp ^j
20	115	C	Severe	30"	Moderate to Severe	2° F	Yes	2/4/15	1,000 Days	54°F

The 2015 Fuel Gas code on that list as well that needs to be updated. It can also be adopted without amendments. It is normally an accessory code for the mechanical and plumbing codes but we have adopted it in the past and should update it now. Also the table that needs to be inserted at the beginning of the code has been updated and attached. The only real change to this is the wind speed design has gone up to 115 mph from 90 mph.