

**LEE'S SUMMIT BOARD OF APPEALS**

**Minutes of Tuesday, October 18, 2018**

Chairperson Brown called to order the Tuesday, October 18, 2018 meeting of the Lee's Summit, Missouri Board of Appeals at 6:00 p.m., at the Strother Conference Room, 220 SE Green Street, Lee's Summit, Missouri.

**OPENING ROLL CALL:**

Mr. Robert Crance. Chair	Present	Mr. Steve Patterson	Present
Mr. John G. Brown	Present	Mr. Rodney Loesch	Absent
Ms. Karen Sallee	Present	Ms. Pam Schleiden	Absent
Mr. Dana Miller	Present		

Also present were Michael Copeland, Senior Building Inspector, Development Services; Tracy Deister, Codes Administration Manager, Development Services; Ryan Elam, Director of Development Services; Jim Eden, Assistant Fire Chief, Fire Department; and Jeanne Nixon, Development Center Secretary

**Approval of the August 29, 2018 Board of Appeals Minutes**

On the motion of Mr. Patterson, seconded by Ms. Sallee, the Board of Appeals voted unanimously by voice vote to approve the minutes of the meeting of August 29, 2018.

**Recommendations for the adoption of the 2018 International Residential Code (IRC)**

Mr. Copeland stated that he had been in charge of the residential portion of the 2018 IRC. He gave a brief background of the process. The procedure had been for an appointed panel of individuals who were stakeholders in the community to review the changes to the codes and provide feedback, followed by a recommendation. The City had made slight changes to the process this year. Staff had participated in a metro-wide code adoption effort. This was an attempt to get some consistency in understanding of the codes and their amendments from community to community. Mr. Copeland then asked if the Board would prefer covering each amendment or identifying the significant changes from the 2012 edition.

Chairperson Brown asked that he cover significant changes, and Board members could ask questions about any specific items. He asked which other municipalities in the metro area were involved. Mr. Copeland replied that they were working through the Heart of America Fire Chiefs, with representation from Lee's Summit, Shawnee, Lenexa, Overland Park., Independence, Belton and Raytown. They had also worked with the Kansas City (MO) Fire Department. The task force had provided a generalized list by code section that identified which municipalities were making modifications to that section.

Mr. Copeland then displayed the portion of the design criteria that established thresholds for various parts of the code. The requirement for an ice barrier underlayment to protect interior walls was a significant addition, although it was now a common requirement in the metro area.

Mr. Miller asked if this underlay was a membrane, and Mr. Copeland answered that it was; and would be installed before the asphalt.

Section 507 (Decks) as a whole had major changes. Previously the IRC's requirements for deck construction had been fairly lax. They had been added to the code only in 2012; and significant changes were made in 2015 but Lee's Summit had not adopted them. The expanded provisions in 2018 gave code professionals more guidelines on enforcement of codes specifically related to decks and design classifications pertaining to them. He had deleted one particular section (507.2) requiring lateral restraints; specifically referring to a device not often used as lateral bracing for decks. This kind of protection was covered in the code's existing requirements for attachment to the structure.

Regarding the ice shield, Mr. Miller asked for clarification of the statement that "*this section would now require [an] underlayment to the interior wall.*" Mr. Copeland explained that with a 2-foot soffit, the additional protection would have to extend all the way back to the inside of exterior walls, a distance of about 24 inches.

The next significant changes were to the electrical portion of the IRC. It now required an additional convenience receptacle for every bay in a garage, previously requiring only one; as well as a branch circuit for the garage itself. The City did not support this change, leaving requirements for receptacles as currently stated. Mr. Copeland added that the City had at other times amended exceptions for ground fault circuit interrupter protection for designated appliances including garage door openers. The additional convenience receptacles would make a situation less likely where a homeowner would connect another appliance to an unprotected receptacle.

The next, and possibly biggest, change was the largest, and Mr. Copeland had attached an article, "AFCIs Come Of Age", summarizing the evolution of arc fault circuit interrupter [AFCI] protection. Staff had recommended that the City adopt this for all 120-volt, 15- and 20-amp outlets in a house. Arc fault circuit interrupters were introduced into the 1999 NEC [National Electrical Code], requiring them for branch circuits having bedroom receptacle outlets. The requirement would not be effective until 2002, as they were not yet being manufactured in 1999. Over time, arc fault protection had increased its presence in the NEC and IRC, specifically in requirements for parts of a house other than bedrooms. By 2014, the NEC required AFCIs for all 15- and 20-amp circuits in a house. Staff recommended adoption of this section.

Another significant change, a requirement for tamper-resistant receptacles, had been in the 2012 edition. At that time, these were fairly new devices, so it was not clear what this technology brought with it, so the City had deferred adoption until it was clearer how well these functioned and how effective they were. The code would not require all readily accessible 15- or 20-amp receptacles to be tamper-resistant. "Readily accessible" meant that the operating handle of the switch or circuit breaker in its highest position was no more than 6 feet, 7 inches above the floor.

Chairperson Brown asked if there were other items in the Board members' packets that defined things staff was either amending or staying with the State statute. Mr. Miller commented that he had not known that 1 3/8 inches was acceptable for a fire door (Section R302.5.1 ). Mr. Copeland clarified that this referred to a solid core door for a garage.

Referencing item 7-918 ("Drainage System), Mr. Miller noted the requirement for sump pumps *"that receive discharge from exterior daylight drains shall have a battery backup system installed."* He asked for an example, and Mr. Copeland cited a walk-up basement that had a floor drain connected to a sump pump. The homeowner would need a backup battery in that scenario. A window well would not be considered a daylight drain. He then stated that people involved in the process were present at the meeting, and he asked that they be allowed to speak.

Mr. George Schluter stated that he was a home builder in the Kansas City metro area and Chair of the Kansas City Home Builders Association codes task force. He had met with the Codes Administrative staff this afternoon. They had resolved a number of items but still had a few major points of concern. One was the recommendation to require floor protection if a builder or homeowner was using I-joists. He referred the Board to "Building Planning Chapter 3: Protection Of Floors" [R302.13]. The KCHBA had requested an exception for wood I-joists as well as lumber joists. Wood I-joists were very popular, providing the builder and homeowner a very level floor where joists were different thicknesses. Tabs 3 and 4 referenced studies showing that the burn rates of these joists were not much different from lumber joists. The protection requirement could raise the cost of the home about \$1,200-\$1,600.

Statistics for fires in single-family homes showed that they were the most common in cooking areas, bedrooms, common areas such as family rooms, attics and exterior wall surfaces, laundry areas and vehicle storage areas. Neither the National Fire Protection Association nor FEMA's records included basements as a source of fire. The code did require builders to install smoke detectors on all levels, including the basement. The Fire Protection Association had reported that 40% of single-family fires were limited to the object of its origin and 21% to the room of origin; and did not spread from one room or level to another. It made good economic sense to allow the exception for the wood I-joists. Mr. Schluter noted that this exception was in the 2012 edition in Kansas City and Overland Park. He added that he could use I-joists if he chose to build a house under the International Building Code, as the prohibition was only in the residential code. The builder would be required to have the plans stamped by a licensed design professional such as an architect or engineer.

Mr. Patterson asked if it was correct that the builder would have to cover all the ceiling joists in the basement and not use I-joists. Mr. Schluter replied that it was; and heat runs or duct work in the basement would also have to be enclosed. In a home with an unfinished basement, this was often done by the homeowner later on, as finishing the basement would include tearing out sheet rock and installing electrical and plumbing equipment. Mr. Patterson then asked if the commentary gave the reason why code officials required the gypsum-wood protection joists for joists and not for the spans on the first floor level.

Mr. Copeland explained that much of the intent was to protect firefighters due to the amount of time it would take for a floor to fail under fire conditions with these types of joist materials. He added that since the City had adopted this provision in 2012, this was not a major change. Additionally, it specified 1/2-inch gypsum board or equivalent; so a homeowner would have alternatives to installing gypsum board on the underside of the joists. Chairperson Brown asked if the requirement R302.13 was in the 2012 edition of the IRC, and Mr. Copeland replied that it was. Chairperson Brown noted that since construction had been going on since then, this had been a practice in Lee's Summit in the past six years. Mr. Schluter responded that this was correct. He added that the provision of "1/2-inch gypsum board or equivalent" meant that a

homeowner might be using something like 3/8-inch plywood. Some new products had been developed since 2012, including I-joists with fire retardant. Builders did recognize the concern for firefighters. They had offered to supply, at their own cost, signs stating that lightweight construction was used in the home, in order to alert firefighters if the City chose to allow wood I-joists without the mandated protection. The signs could be posted on the electric meter, gas meter or both. Wood lumber joists sized 2x10 or larger did last a little longer than wood I-joists so that was an option.

Mr. Miller asked if this provision had been enforced strictly or if most people just used the option of having plans stamped in order to avoid using sheet rock on the bottom of joists. Mr. Schluter answered that this option would apply only for homes being built under the International Building Code rather than the IRC. Mr. Crance asked if the stakeholders had discussed this topic to any extent, and Mr. Copeland replied that they had; and the provisions of the code in general had been enforced since its previous adoption in July of 2013. Builders varied in preferences, and some of them had used I-joists with others preferring dimensional lumber as an additional protection layer. He noted that some of this was driven by the State of Missouri now allowing a requirement for residential sprinklers. Mr. Crance remarked that the stakeholders' consensus was to not amend but to adopt the requested exception, and Mr. Copeland answered this was correct.

Chief Eden stated that this particular section of the IRC was amended as a response to the State's not allowing a requirement for residential sprinklers. When those were installed, they provided protection for the same devices being discussed. Numerous UL and NIST [National Institute of Standards and Technology] studies indicated a significant difference between the "fire survivability" of an engineered-lumber floor and one built with dimensional lumber. He remarked that firefighters' lives put in an acceptable loss context was startling; but in any event the design would impact the time they had to search the residence, so the survivability of people in the structure was a factor as well. Lee's Summit's Fire Department had responded to fires in homes with unprotected engineered-lumbered basements and the fire weakened the structure much faster. The signs that Mr. Schluter had proposed would actually have the effect of keeping firefighters out of the house if the fire was in the basement, as basement fires were very dangerous especially for first responders. Even a small fire originating in a basement could cause significant property loss, which could also raise issues with insurance carriers. The discussion centered on the initial cost versus a number of factors: firefighters' lives, survivability of people in the structure and property replacement costs. From the Fire Department's perspective this was a reasonable amendment to the IRC in view of safety.

Mr. Miller asked if drywall could be used when sheet rock was required to be applied in the basement ceiling, and Mr. Copeland answered that the code did not require it as a rated assembly. Chairperson Brown noted that the 2018 version was not an amendment as was referenced. A requested amendment would create an exception that the City of Lee's Summit was not proposing. Mr. Patterson recalled a lot of pushback when the IRC was last adopted, with that same issue being raised.

Mr. Miller going on the assumption that the protection was sheet rock, the homeowner might have already removed some of it and thereby modified the basement in order to accommodate something like stereo wires. That would be a risk situation created after the fact. Chairperson Brown asked if he thought this would create a higher risk than if the protection had not been installed at all; and Mr. Miller responded that a firefighter might assume it was all sheet rock

when in fact it was not. His point was that once this was done during construction, there was no guarantee that it would all stay since the homeowner might modify it. Chairperson Brown noted that this requirement was not in the IRC until 2012.

Chief Eden related that when Lee's Summit firefighters entered a building during a fire incident they had often quickly noted problems with the structure. A fire might start in one corner of the basement and it was clear where it had burned across the ceiling where engineered lumber was located; with quick and significant damage to those items. Crews entering through the front door would notice an immediate sag in the flooring. This was especially true for houses in the center of town. Lives could be lost if a lot of smoke was present and crews could not immediately identify danger points. He added that practices had changed over the years, noting that not long ago it was not common to put drywall up in garages. The provisions added since that time are to protect beams and columns in a garage. This year there was a fire on July 4th that was an intense fire inside a garage. The drywall not only protected the joists but also separated the garage from the living area and if it had not, this would have been a much worse scenario. As it was, the fire was confined to the garage only. Drywall truly did an efficient job in stopping fire and it was the best option in the absence of a sprinkler system.

Mr. Schluter related that in the late 1900s and early 2000s, the US had three building codes. The three organizations came together to form the International Code Council, and the National Association of Home Builders supported this as it meant more consistent and uniform codes nationally. At the same time the National Fire Protection Association created their NFPA5000 building code, and tried to convince various state, county and city jurisdictions to adopt it. Home builders associations across the country were in favor of adopting the ICC's codes in order to have a uniform standard nationwide. The ICC gave home builders opportunities to participate in their committees and present their viewpoints regarding proposed changes. When home builders responded to these opportunities, the NFPA immediately removed them off their code writing councils.

The International Code Council had an agreement with the NFPA to just transfer provisions from the national electrical code that applied to residential construction to the IRC. The Home Builders Association, nationally and locally, were able to discuss proposed changes at the local level. In his opinion the national electrical code was concerned only with creating work for electricians, as they had put items in that were not applicable or considered in the overall picture. An example was the requirement for an electrical outlet on every balcony, which did not take into account balconies that were only decorative features. It also required an outlet within 25 feet of outside air conditioning units; and contacts at three local electrical businesses had told him that their workers did not even have electricity-operated tools on their trucks since they used batteries. Consequently, this was a requirement for outlets that would probably not be used.

The biggest complaint that home builders had about the electrical code was arc fault protection. The code required that any circuit not GFCI protected would be arc fault protected. Arc fault protectors had been around for a while, but they still had some problems. A breaker operating for an appliance like a fan might often be tripped. The breaker was likely to trip very often even for appliances like hair dryers. Arc protection could cost anywhere from \$650 to \$1,000 depending on the size of the house and how it was wired. Affordability was among the precepts in the IRC, along with public safety and sanitation. The KCHBA did not believe that arc fault protectors provided additional protection to homeowners; although they had other applications

including industrial uses. The 2012 code had them required in bedrooms, which had become a common practice throughout the Kansas City area. The St. Louis HBA had just gone through their code adoption process, and in St. Louis they were adopting the 2015 code instead of the 2018 update. Both St. Louis metro counties had accepted arc fault protection from the code altogether. What the KCHBA was requesting here was to continue to require them in bedrooms but not in other parts of a house. Mr. Schluter added that they had resolved other issues such as basement and garage plugs.

Mr. Patterson asked if there were now arc fault protected breakers available that protected the entire circuit. Mr. Copeland replied that this was correct, and this would be the most common form of protection. It was essentially a breaker that protected the entire branch circuit, so that if an extension of that circuit was added, such as adding more receptacles, the protection would still be there. Staff had included this in the packets. He clarified that Mr. Schluter was referring to what was called a “nuisance trip”, which had been a consequence of both a lack of information and the manner in which the arc fault devices were made and wired. Problems had also come up with a ground fault protection on the same circuit as arc fault protection. The four major electrical distribution companies had come a long way since then. Mr. Copeland noted that while arc fault protection had been for just bedrooms, ceiling fans in bedrooms were common now and the technology had reached a point where the benefit far outweighed the cost related to electrical fires.

Mr. Patterson asked if electricians were now having to wire a house differently so items like lights and ceiling fans were not on the same circuits as the arc fault. Mr. Copeland answered that they did not. The code required everything on a circuit be protected from arc fault on all 15- and 20-ampere outlets. Mr. Schluter stated according to the new code, anything not GFCI protected had to be arc fault protected. Low voltage was not counted. Mr. Crance again asked if the stakeholder group had discussed this and if there was a consensus. Mr. Copeland answered that the stakeholders did not support this particular item. It was staff's recommendation to keep the code as written.

Chairperson Brown asked if it was correct that the code had anything about arc fault in 2008, with a requirement for bedrooms only added in 2012. Mr. Copeland answered that the code of 2006 would have been applicable in 2008 and as far as he knew the requirement for bedrooms was there on the national level. Mr. Schluter stated that the national electrical code of 2014, with the 2015 IRC version applicable, required arc fault in all receptacles not GFCI protected.

Chairperson Brown asked if the Board had a consensus as to whether to follow staff's recommendation of not amending this part of the code. Ms. Sallee asked what percentage of homes this applied to. Mr. Schluter replied that he had some figures showing production and how much costs had increased, adding that home builders in 2014 were still recovering from the 2008 disruption. In 2010, 470 million linear feet were produced in the US and Canada, and 790 million linear feet in 2017. Wood I-joists had been available for about 50 years and he had first used them in 1984. Using them made it possible to span longer distances than lumber joists. Moreover, they were lightweight enough to be easy to handle and install, and they provided a very uniform floor. Mr. Copeland confirmed that they were being used for 50% to 60% of new construction, so they were very widely used.

Mr. Patterson asked if any topical fire retardant could be used on these joists and if this would mean they would be compliant with the code. Mr. Copeland replied that a couple of applications

that the American Plywood Association, an accredited testing agency had tested some applications in the context of protecting wood I-joists. Fire-rated mineral wool or gypsum were a more common and less expensive choice. Boise Cascade, one of the larger joist manufacturers, had sponsored tests and recommended that they be covered. Mr. Schluter added that these choices would be on an individual basis, and the builder would have to provide the information to the authority having jurisdiction since it was not covered in the code.

Chairperson Brown stated that a motion would be needed if the Board wanted to support amending this part. If the Board had no amendments to staff's recommendations, the code would be adopted as presented by staff. There was no motion, so this section on arc fault breakers on all 15- and 20-amp outlets in a dwelling would be left as described. Mr. Schluter thanked the Board for the opportunity to present the KCHBA's viewpoint.

Chairperson Brown then called for a motion to recommend to the City Council adoption of the 2018 International Residential Code as presented by staff. Mr. Deister stated that staff was seeking a recommendation to move this item forward to the CEDC, and subsequently to the City Council. At the last Board meeting they had discussed the International Property Maintenance Code; and staff requested a motion to move that forward as well.

Mr. Crance made a motion to recommend to the Community Economic Development Committee adoption of the 2018 International Residential Code as presented by staff. Mr. Miller seconded. The Board of Appeals then voted unanimously by voice vote to approve the motion.

Chairperson Brown then asked for a motion to move the International Property Maintenance Code forward.

Mr. Miller made a motion to move the International Property Maintenance Code forward to the Community Economic Development Committee, and Mr. Patterson seconded. The Board of Appeals then voted unanimously by voice vote to approve the motion.

## **ROUNDTABLE**

Mr. Deister stated that they would need to meet one more time and discuss the plumbing, mechanical and fire codes. Not many changes were being made to these codes, other than the IFC. That meeting should complete the 2018 code approval process. The stakeholder meetings had already concluded. Staff hoped to take these to the November CEDC meeting. Chairperson Brown stated that he would be out of town in New Orleans for a conference the first week of November.

## **ADJOURNMENT**

Mr. Crance made a motion to adjourn the meeting and Mr. Miller seconded. The Board of Appeals voted unanimously by voice vote to adjourn the meeting.

There being no further business, Chairperson Brown adjourned the meeting at 7:04 p.m.