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# CITY OF RAPID CITY

## RAPID CITY, SOUTH DAKOTA 57701

Rapid City Fire Department  
Fire Prevention Division  
1930 Promise Road  
(605) 394-5233  
Fax (605) 394-5235

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Summary and Fact Sheet  
Ordinance 6049

Inclusion of R501.3 "Fire Protection of Floors" within the 2012 Edition of the International Residential Code

This section has been debated for several months, which has involved the Rapid City Building Code Board of Appeals, Legal and Finance Committee, Rapid City City Council, Rapid City Fire Department, and the Black Hills Home Builders. The opposition for Ordinance #6049 is primarily from the Black Hills Home Builders based upon costs added to projects. The Rapid City Fire Department has supported the inclusion based upon public safety and firefighter safety.

Lastly, I need to clarify that the code section in question is not a section that was created locally by the Rapid City Fire Department, as many may believe. Instead Section 501.3 was approved by the International Code Council membership in 2010, as a work product jointly developed by the National Association of Home Builders, International Association of Fire Fighters, American Wood Council, and the International Association of Fire Chiefs-Life Safety Section. As you can see, the development group represented the Fire Service, Wood Industry, and Home Builders at a national level. I am confident that the same concerns discussed by all parties involved here locally were also vetted by the code development process.

In an attempt to resolve this issue, the Rapid City Fire Department has listened to concerns, sought additional options to meet the provisions of R501.3, and recognized the implications of additional costs. The following will attempt to summarize the issue and answer previously raised questions.

#### Position – Rapid City Fire Department

The Fire Department supports the passage of Ordinance #6049 and inclusion of the provision providing for fire protection of the floor assembly.

- Modern lightweight construction has an accelerated failure rate with an average time of 6 minutes from the start of a fire vs. an 18 minute average for legacy construction.
- Accelerated failure rates coupled with modern fire loads reduce the available time for occupants to escape affecting life safety.
- Fire Department response times from the reported time is 4 to 8 minutes average. Accelerated collapse rates of 6 minutes average from the fire start directly impacts the Fire Department's ability to conduct rescue and suppression activities due to unstable

structures. Upon arrival, Rapid City Fire Department has experienced a number of near hits, which identifies the level of risk to firefighter safety.

- Exclusion of Section 501.3 is in direct contradiction of the basic core responsibility of the Rapid City Fire Department in its duty to provide for public safety.
- Ordinance 6009 effectively reduced the minimums already established in the IRC (International Residential Code). Support of 6049 re-establishes the minimum standards and meets public expectations.

### Black Hills Home Builders

Black Hills Home Builders opposes approval of Ordinance #6049 based upon two primary factors indicated in their letter to Mayor Kookier and City Council: construction cost and wasted material when a basement is transitioned from unfinished to finished.

#### *Cost Impact on Construction*

Unfortunately, the protection of the floor assembly does come with a cost. How that impacts new home construction is arguable as it relates to public safety.

- Currently the International Residential Code Section 501.2 contains four basic exceptions or alternate methods of meeting the floor protection criteria.
- Six additional options have been identified, which utilize various assemblies, fire resistant material, or field-applied spray products. The cost appears to range from as low as 13 cents per square foot for the spray applied product to several dollars per square foot based upon the complexity of the option utilized.

The three most common methods likely to be used in Rapid City are as follows:

- 1/2 " sheetrock -- \$0.80 to \$1.00 per square foot
- FX Lumber Gard -- \$0.13 - \$0.50 per square foot
- Fire sprinkler protection -- \$1.25 to \$2.00 square foot

#### *Wasted Material*

- Section R501.3 of the IRC does not require the 1/2" gypsum wall board membrane, 5/8" wood structural panel membrane or equivalent to be fire taped or joint treated. Therefore, the membrane may be easily removed at such time a basement is finished.
- Limited benefit of time provided by protection of the floor assembly.
  - The protection of the floor assembly is entirely about adding time. Maintaining structural integrity longer, which aides in occupant escape, as well as affording responding firefighters additional time to affect rescue and suppression activities.

### Council Person Questions/Concerns

Cost comparisons and if this provision is added, what can be removed?

- As previously noted, unfortunately, this provision does come with a cost. However, the cost is dependent on the option utilized to meet the provisions of Section 501.3. The most cost effective option for the homeowner is actually fire sprinkler protection, as this is the only option in the list which addresses suppressing the fire.

How many times have we at Rapid City Fire Department experienced a real life example of floor issues?

- Roof assembly (lightweight construction) 2-3 minutes – 2881 Belgarde Blvd
- Black Gap 2/10/15
- Johnson Siding area
- Whispering Pines (2)
- Hideaway Lane
- Fieldview attic ceiling collapse

This is a real issue in Rapid City.

Affordable housing impact?

- Fire protection at the floor assembly has a positive impact as it is providing a safer environment for the homeowner
- Estimated one-half to one percent of the cost of construction
- \$150,000 home approximately \$5.00/month over 30 years.

### Closing Comments

It must be pointed out that this is not a battle between the Rapid City Fire Department and the Black Hills Home Builders. The Fire Department is simply charged with the responsibility to reduce risk and to provide a safe environment for our citizens, visitors, and firefighters alike.

I also believe that it is the City Council's obligation to support public safety through maintaining the minimum standards as provided for in the IRC. The home buyer has the expectation that the home constructed for them meets the basic provisions of the code, and as a community we should provide that.

I would encourage you to not maintain exclusion of R501.3 from the 2012 IRC by voting "yes" on Ordinance #6049, which effectively places Section 501.3 back into the 2012 IRC R.C.M.C 15.13.280.

Thank you,  
Tim Behlings, Asst. Chief  
Fire Prevention Division  
Rapid City Fire Department  
(605) 390-4511