



# ***CHIEF'S FILE CABINET***

***Ronny J. Coleman***

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## Thermos Bottle Building

Do kids still take lunch boxes to school? I'm a great-grandparent now, so I am a little remote from the routine of the school day drill. I do recall a point in my life when your metal lunch pail was a status symbol, and your thermos of hot soup was really neat on a cold winter day. Do kids still know what a thermos bottle is; or has that gone the way playing marbles or jumping rope has in recreation?

Well, be prepared for the return of the thermos concept in a big way. Have you ever heard of a thermos house? Of course it's not a real thermos bottle. It's not metal in the outside and a fragile glass bottle on the inside. Instead it is a structure that is so tightly sealed up that it does not allow heat to escape in the winter, or heat to penetrate on the summer. A thermos building is one that maintains a specific environment with a minimum amount of exchange between the building and the atmosphere.

The world today is experiencing an energy revolution. Environmental issues are catching up with consumer demand. With the increased emphasis placed on preserving the environment consumers are being recruited to play new roles in saving energy. By saving that energy, advocates believe they can definitely take a positive step in fighting the climate change and in preserving non-renewable sources of energy. While this issue is being debated in a public forum, homeowners and building managers are acting to seal up their buildings better than ever before.

Of course, we all know that buildings have to breathe; at least conceptually they have to be able to have adequate circulation to reduce other adverse effects like fungus.

What I am in reference to is the increased desire in our world to reduce the impact on the environment by making buildings "greener" and subsequently they do not lose as much energy to the atmosphere. This phenomenon should be closely examined by fire agencies, for it is my belief that it may well impact the tactics and strategy we employ to combat interior structure fires.

An increase in insulation and a careful energy audit may make any building into a nice cozy place to be, but it sure won't react to fire conditions the same. Fire protection engineers have often noted that fire behavior has two different scenarios; fuel fed fires and ventilation driven fires. In a fuel fed fire, the presence of oxygen to support the combustion is readily present and allows a specific burn rate. In ventilation driven fire, the fuel is accelerated by the movement of air and subsequently you have faster burning fires.

The fact is that firefighters must make a decision fairly early on in a fire about whether to ventilate a fuel driven fire or whether to enter and operate from a ventilation driven fire. Now we have to be able to ascertain whether the fire has been artificially influenced by the thermos effect and make sure that our



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chosen tactics and strategies do not allow aggressive firefighting to become more dangerous.

Fire officers should become more familiar with the use of energy codes in two different areas. The first is in the construction of new buildings. This is where the codes are impacting the fire problem in a profound way. Whole new tracts, entire new neighborhoods may be setting up a new environment for you to fight fire within. There may be creativity with products where assumption can get you into trouble fast. For example, the insulation in attics, the caulking around doors and windows, even the type of glass in the windows may be more difficult to force entry.

There are a couple of websites you might want to visit to increase your knowledge base and improve your vocabulary.

They are:

<http://www.energy.gov/energysavingtips.htm>

<http://www.nvenergy.com/saveenergy/home/energytips.cfm>

<http://www1.eere.energy.gov/consumer/tips/>

<http://www.pge.com/myhome/saveenergymoney/savingstips/>

<http://energysavingweb.info/result.php?Keywords=Energy%20Savings>

[http://www.energysavers.gov/your\\_home/insulation\\_airsealing/index.cfm/mytopic=11220](http://www.energysavers.gov/your_home/insulation_airsealing/index.cfm/mytopic=11220)

The last one noted is the U.S. Department of Energy website. The section on insulation and air sealing is a clue to the way these recommendations are changing the environment.

As I wrote this, I was reminded of a joke about thermos bottles. Apparently a young man was told that if he put hot stuff in a thermos, it would stay hot all day. Likewise he was told that if he added cold stuff, it would keep it cold. His question was "how does it know the difference".

Well, the laws of heat exchange and the effect of insulation are well known to us as features of fire behavior. Our task is to know the difference when we are about to assault a structure fire attack or ventilation. In this case knowing the difference keeps you out of harm's way.