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**R-TRAC**  
**Meeting # 10**  
**Topic: Lighting, Appliances, and Owner Education**  
**Wednesday September 22, 2010, 3 – 4:30 pm**

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**PARTICIPANTS IN ATTENDANCE**

**Utilities Green Building Team**

Amanda Sutton – Green Building Program Coordinator  
 Doug Swartz - Green Building Program Manager - Energy Services Engineer  
 Felix Lee – Green Building Code Project Manager  
 John Phelan - Energy Services Manager  
 Kim DeVoe - Energy Services Specialist

**Facilitator**

Susanne Durkin-Schindler

**R-TRAC Members**

<b>Company</b>	<b>Representative</b>
Aspen Construction	Gil Paben
Highcraft Builders	Gordon Winner
Aspen Homes of Colorado	Rob Sabin
Dana McBride Custom Homes	Dana McBride
The Green Team Real Estate	Lara Williams
Sovick Design Builders	Dennis Sovick
FCBR	Michelle Jacobs
Crown Jade Design and Engineering, Inc.	Mark Benjamin
Vignette Studio	Terence Hoaglund
National Center for Craftsmanship	Nick Benson
Armstead Construction	Jeff Schneider
Vaught-Frye-Ripley Design	Linda Ripley
The Atmosphere Conservancy	Alex Blackmer
Merten Design Studio	Rob Ross

## **Building Officials**

<b>Jurisdiction</b>	<b>Representative</b>
Larimer County	Tom Garton
Safe Built	Russ Weber
City of Longmont	Chris Allison
City of Fort Collins	Russell Hovland
City of Fort Collins	Mike Gebo

## **Members of the Public**

Alan Cram

## **Updates**

The 2009 I codes were officially adopted on September 21, 2010. They will go into effect on October 11, 2010.

## **Energy Efficiency - Doug Swartz**

### **Dark Sky Exterior Lighting:**

The 2009 International Residential Code (IRC) addresses residential lighting and is more stringent than the 2003 codes. Staff is not recommending any additional requirements for indoor lighting at this time. However, exterior lighting is not addressed in the IRC.

Excess exterior lighting causes glare, has impacts on wildlife, and limits the view of the night sky. Staff is recommending that cutoff fixtures with the International Dark Sky Association (IDA) seal of approval be required for outdoor lighting. Initial research shows that many choices are available that will meet this certification. Retrofit kits are also available to modify fixtures and make them compliant. Staff is continuing to do additional research on cost and availability of IDA approved fixtures.

### **Committee Comments:**

- The City's own street lights do not meet dark sky standards. That is something that should be addressed before requiring this in code.
- Would a fixture list be provided to builders? Could this requirement be generalized to prohibit the use of bulbs where the light shoots out instead of downward?
- Would landscape lighting be included in this requirement?
- Many times the builder does not know what type of fixtures are going onto a house. The homeowner is the one who decides.
- Retrofit kits can be used to bring many lights into compliance if a certain fixture is not approved by the IDA.

- This could be something that is promoted through education and incentives. It may be too difficult to enforce as a code requirement.
- Even if people change fixtures after construction and move in, this requirement would still be making a difference and educating consumers.
- Flagstaff, AZ has an observatory so they require the whole city to have non-white light or dark sky fixtures City-wide. They may be a good resource for staff.

### **Home Appliances:**

The City is not proposing any changes to the 2009 IRC as it relates to appliances. The homeowner is usually the one who selects and installs the appliances in the home. The single largest electric use in a home is the base load that is caused by appliances, entertainment systems, and other plugged in items. Staff would like to continue to promote base load reductions through education and incentive programs.

### **Committee Comments:**

- Code requires a 60 amp service to homes but most homes are 100 amp. 150 amps is typically the max. If incentives existed either through building permit rates or other fees/rebates it could encourage builders to try to reduce that.

### ***Indoor Environmental Quality - Materials - Felix Lee***

#### **Low VOC Materials:**

The NGBS contains a lot of information about the types of materials that should be used in a home. Many people do not think about what goes into or is off-gassing from the products that they are putting into their home. Staff is suggesting that the major types of materials used in a home be addressed. This includes wood products, sealants and adhesives, flooring, paints, stains, varnishes, and other site applied finishes. Those products that are used and applied on site must be low emitting and documented. Wood panels, hardwood veneer plywood, particle board, and fiber board building products must comply with USDOC PS-1 and PS-2. The GREEN GUARD certification will be required for site applied coating, sealants, and adhesives.

### **Committee Comments:**

- This is a requirement that would need to be documented and verified. Staff needs to make sure that the documentation is available.
- Do any local cabinet makers satisfy this requirement? Builders will go to a cabinet maker and they will not even know what they have. It would

require a custom cabinet job - many of the large cabinet manufacturers do not have low VOC options.

- This is not unobtainable but may be a tricky endeavor for most builders.
- This is a good requirement for retrofits and additions where the people are living in the home during construction. After some of these materials are applied they off-gas quickly. It doesn't make as much sense to regulate those.
- Low VOC paints and stains are readily available at cost competitive prices and work just as well as their conventional counterparts.
- Documentation is going to start to bog people down. There is going to need to be a big document binder that is turned in for the C.O. Will the building inspector have time to sit and go through all of the documentation?
- It may be a good idea to start with a detailed list of what is required in each home.
- Certain products in a house can off-gas for a long period of time. This could be an important thing to include in the code because it would have a positive impact on the indoor air quality.
- The requirements listed by staff are pretty extensive - it may be better to target the highest emitting materials that will off-gas over a long period of time. Staff should do additional research to figure out what those are.

### ***Building Owner Education - Felix Lee***

This section would require that builders provide operation and maintenance information to homeowners. This requirement addresses the need for education of the owner on how the systems in their home operate and how they should be maintained. The NGBS requires that owners are trained on how to change HVAC filters, thermostats, lighting appliances, etc. The owners manual, in whatever format makes sense, would need to stay with the home.

### **Committee Comments:**

- People are getting more and more in tuned to reading manuals. It may be better to have that information electronically.
- The owner's manual or education piece does not need to be a huge document. It can be a simple, standardized document or plaque that can be given to the owner or permanently placed in the home.

- Less is more on this issue. A manual is unrealistic for a lot of the population because it will get misplaced and rarely go to the next homeowner. The City could say that they want homeowners to know 10 things about every house and provide a template that builders can fill in.
- Homes will change hands several times. If the original homeowner does not hand over the owners manual (which is common) there is nothing to tell the new homeowner how the home works.
- There could be a comment section that allows the builder to fill in important information. If you did it at the beginning of the process it may provide an opportunity for education. It could be an educational tool.
- It is important that this component provide basic awareness for the second or third owners of the homes that do not hear from the builder how things work.
- People who are proud of their green built home will want to pass that on to the next owners but there are many homeowners who don't have the same level of pride in the home they are selling.
- It may not be necessary to provide a detailed owners manual for people. They just need the basics. They can use the internet or professionals as a resource to get maintenance and basic operational information.
- The IRC requires that some information is placed in the electric panel the owner's manual could be an extension of that requirement.
- The plaque could be always installed next to a certain piece of equipment. That way people will start to know where to look no matter what house they are in.
- A builder could put tags on major parts of equipment that say important information (shut off, who to call, etc).
- Could have a plastic/steel box where all of the manuals could be stored. That may help keep things together.

**Next Steps:**

- Next R-TRAC meeting: October 27, 2010
- Boards and Commissions will be visited by GB staff throughout November
- Green Building Open House: November 17<sup>th</sup> - 4-7 p.m. at Streets
- Next Council Work Session - December 14, 2010

- City Council will be making a decision on this code proposal in March 2011. The first reading will be on March 1<sup>st</sup> and the second reading will be on March 15<sup>th</sup>.

Several tasks remain for the remainder of this process. Staff has a lot of research to do to quantify costs and benefits and determine how to handle administration, practicality, etc. A small group of HVAC contractors will be convened to discuss the systems requirements discussed last week. Staff will also be discussing how the proposed code amendments will address existing homes. Multi family housing is covered under the commercial code. Staff will be working on alignment between what is being proposed for the commercial and residential codes.

A core proposal will be developed by staff that will include the top 10-20 amendments to the 2009 I codes. Staff will also identify options that would need to be given to council for feedback. The base code proposal will consist of the practices that make the most sense. Possible additional options for council will include house size, certified wood, and renewable energy requirements.

Staff will also be looking into two alternate compliance paths. The first is the simulated performance alternative which is based on energy modeling requirements. The second is the NGBS. A benchmark subgroup is working through the NGBS to determine the most likely paths that a builder will take to reach each of the different levels of the NGBS. The goal is to have a performance path that equals the prescriptive path in results.

Staff will continue to meet with the building department to determine what kind of implementation schedule will be feasible. Resources are important. Staff is going to be honest with City Council about this issue and let them determine how many resources they are willing to dedicate to this effort.

#### **NEXT MEETING**

October 27, 2010 – R-TRAC Meeting #11

3-5:30 p.m. Fort Collins Utilities Service Center - 700 Wood St.