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C-TRAC
Meeting # 9
Topic: Existing Buildings
Wednesday September 15, 2010, 3 – 5:30 pm

PARTICIPANTS IN ATTENDANCE

Utilities Green Building Team

Amanda Sutton – Green Building Program Coordinator
Felix Lee – Green Building Code Project Manager
Gary Schroeder – Energy Services Engineer – Commercial GB Code Review

Facilitator

Susanne Durkin-Schindler

C-TRAC Members

Company	Representative
Aller Lingle Massey Architects PC	Brad Massey
Beaudin-Ganze Consulting Engineers	Corey Rhodes
Brinkman Partners	Josh Guernsey
Realtec	Peter Kast
Institute for the Built Environment	Josie Plaut
Greg D. Fisher, Architect	Greg Fisher
Trane / IFMA	Matt Horner
Architecture West	Steve Steinbicker
Bella Energy	Rick Coen

Building Officials

Jurisdiction	Representative
City of Longmont	Chris Allison
City of Fort Collins	Russell Hovland

Key Points:

After working with the C-TRAC to review the IgCC, staff has developed a list of green building practices to include in the commercial code proposal. Some of these practices may apply to the Residential sector as well. The proposed green building code amendments are as follows:

Category	#	GB Practice	Intent
Material Resource Conservation & Efficiency	1	Construction & Site waste management	Require that wood, cardboard, metal, and concrete/asphalt be recycled. Recycling plan submitted for permit.
	2	Certified wood	
Energy Conservation	3	Energy Distribution Design Requirements	Each panel, feeder, piping system supplies only one energy type
	4	Building Envelope	Require continuous air and thermal barrier
	5	Duct leakage testing	Test portion of HP ducts & MP ducts
	6	VAV fan control	Require in certain tonnage RTUs for spaces meeting criteria or based on SF
	7	Control of loads in Hotel/Motel guest rooms	Reduce HVAC, lighting and plug loads when guest rooms are unoccupied
	8	On-site renewables	minimum renewables requirement
	9	Outdoor lighting controls	Reduce outdoor lighting by 50% X hours after business closes
Water Conservation	10	Maximum fixture flow rates	See table
	11	Max flow & auto shutoff on pre-rinse spray heads in food establishments	auto shutoff required with max flow rate of 1.3 gpm
	12	Potable water restrictions in HVAC equipment	Restricts use of potable water in specific HVAC applications
	13	Water consumption management	sub-meter water for rentals >50,000 SF
IEQ	14	Building Construction Features, Operations and Maintenance Facilitation	Requires that the building is constructed in a way that makes it easy to manage the air quality system. This includes air handling system access, durability and cleanability of air handling surfaces, air handling system filter design, and insulation materials above suspended ceilings and in air plenums.
	15	Protect ducts from contamination during construction	

	16	Building flush-out	use outside air to flush out building contaminants from offgassing
	17	Isolation of pollution sources	Requires that print, copy and janitorial rooms and repair garages that are enclosed in a space greater then 200 sq. ft. are fully enclosed and separately ventilated.
	18	Asbestos use prevention	no materials with asbestos
	19	Material Emissions	VOC and formaldehyde emissions limits for materials such as compressed wood, paints, sealants, adhesives, architectural coatings, etc.
	20	Sound Transmission	Requirements around exterior-to-interior sound transmission, interior sound transmission, and HVAC sound levels.
	21	Daylighting	Prescriptive or performance requirements for minimum daylighting related to top lighting
Commissioning, O&M	22	Commissioning	Ensure systems operate per design intent

It is important to note that these are considerations at this point and may not be included in the final code proposal. Staff is working on follow up research for these green building practices and will revisit the proposal with the C-TRAC in following meetings.

Committee Comments:

- The green building code will need to be more specific about what is required for commissioning.
    - Currently, green building staff is considering requiring commissioning for mechanical systems, controls, and the building envelope.

- Commissioning of irrigation systems could have a big impact on water use. Commercial irrigation systems need to be reviewed according to the Land Use Code before they can be installed. That process covers the design of the system but does not include commissioning.

- The cost benefit analysis for the code proposal should be transparent to ensure that the public as well as City Council and staff understand how the code was developed as well as the justification behind each green building practice.

- Duct leakage testing is important, but not many contractors who are building smaller projects are testing the duct work. Contractors who are building larger buildings are used to testing for leakage. Leakage is a bigger deal for high pressure systems because more air will be being pushed out of poorly sealed ducts.

Existing Buildings-Felix Lee

Chapter 34 of the International Building Code (IBC) is dedicated to existing buildings. The green building practices will take that a step further. The International Code Council does have an International Existing Building Code (IEBC) that corresponds to the 2009 I-code package. However, the City did not adopt the 2009 IEBC due to resource restrictions.

The green building code provisions would apply to alterations, repairs, additions, maintenance and operations, and change of occupancy of any existing buildings and structures that are not regulated by the International Residential Code (IRC).

An "addition" is defined by the IBC as "an extension or increase in floor area or height of a building or structure." A new addition to an existing building must comply with current codes and cannot result in an enlarged building that is less code compliant than the original, unaltered building.

The next category of modification is “alterations”. The IBC defines an alteration as "any construction or renovation to an existing structure other than a repair or addition." The alteration alone must comply with all applicable current code provisions. Furthermore, the IgCC also requires that when an existing building is altered, in addition to the new alteration(s) complying with all current codes, the entire building must also undergo basic energy, HVAC, and water-efficiency maintenance/upkeep measures throughout. Staff is suggesting that there be a minimum threshold for applying this provision. This threshold would be met if the alteration requires a building permit, has a construction value of over $10,000, and/or replaces major HVAC equipment.

The IgCC does not have any minimum threshold provisions for additions and alterations and requires that they comply with a list of mandatory requirements unless "the code official determines that they are technically infeasible, materials or systems are concealed, or where a tenant does not have control over complete systems." Staff is suggesting including the same exceptions together with any added thresholds.

Committee Comments:

- Chapter 34 can be ambiguous as to how and when you use the provisions in there. It may be tough for some to figure out when to use that section of the code. If staff is going to be addressing existing buildings it may be beneficial to adopt the IEBC.

- The energy code already has a section of requirements that must be met when there is an addition or change of occupancy. Would that section be

amended to include the suggested provisions? If a $10,000 limit must be met before current code measures apply then some important upgrades could be missed (ex. insulation, windows, etc.).

- The minimum requirements could open up a whole lot of additional work on a large building. Perhaps there should be a maximum cost that is to be spent on a remodel so it does not get out of control. The problem is judging whether or not that cost is doing something useful. It may be difficult for the code official to determine that.

- Most of the applications turned into the City are over $10,000 in value. This provision will impact a lot of the projects currently being done in the City.

- This code provision has three levels. The first level is that everything that is changed in a building must be brought up to code. The second level is a minimum level of "tune ups' that must be made to the building. Level three kicks in when the maximum cost of the alterations are greater than 10%. Could the 10% maximum be applied to the second level of alterations? That may ease the costs of alterations for larger buildings.

- The average leased space will turn over tenants every ten years. The building will be updated as each tenant comes in and does their tenant finish. It should not be a requirement that each new tenant finish has to update the whole building.
    - An exception exists for tenants in a space where they do not have control of the complete system

- The City could require an energy audit at the point of sale or a full disclosure of energy use per square foot for the leased unit. That way the market could drive building owners to update equipment to lower utility bills.

- Utilities are a small aspect of the rental equation that is dependant on what equipment is used in the space. For example, lease rates are $12-$20/sq. ft. and energy costs are $0.75-$1.50/sq. ft. The cost of utilities could make a difference when renters are comparing two very similar spaces.

- This could be a great opportunity for incentives and rebates. If Fort Collins utilities and Xcel are serious about getting outdated HVAC equipment upgraded there needs to be an incentive to do so.

- They City needs to be careful about how this is presented to the community. Some building owners may view it as a deterrent to

replacing equipment because they would have to pay to update the whole building.

- Generally, good owners are already looking at how to improve efficiencies. The City should not penalize them for trying to do the right thing.

- You can have a change of occupancy and not a change of use. If an office space is changed to retail then they need to get a new permit.

- Improving existing buildings is a big opportunity to make substantial improvements to buildings in Fort Collins and help the City reach its greenhouse gas reduction goals.

- A large percentage of the commercial building stock already exists. The green building code must address existing buildings in some way.

- Fort Collins Utilities has several existing programs that could be used as resources to help push this forward. What if there was a requirement that there is a list of things that need to be done to the whole building if there is an alteration to part of the building that is paid for in part by incentives/rebates.

- Create a transparent report card for tenants and building owners about how efficient and green the building is. Let the market drive it from there.

- An incentive program could focus on getting building owners to replace equipment that is at or exceeding its useful life. Repairs would only go so far and the maintenance costs to maintain the equipment will decrease. All of that should be included in the ROI.

- ENERGY STAR portfolio manager creates a baseline for several types of building uses. Point of sale would be a great place to do this. Ask for a re-commissioning of all of the buildings systems and have a score card that states where the building sits. You can also set up a contract where the building would need to be upgraded within a certain timeframe.

- Low interest revolving loans for voluntary equipment upgrades could be implemented to help encourage building owners to upgrade equipment. Education is important for both building occupants and owners.

- The Governor's Energy Office has been working on promoting ENERGY STAR, energy audits, low cost financing options etc. Recharge Colorado

may offer resources on how to address the issue of upgrading existing buildings.

- Utility capacity of systems and creation of infrastructure. Demand issues can be addressed by building more infrastructure or by using less energy. Could look at this as a capital investment to prolong the life of the existing infrastructure.

- Another option could be to provide and energy audit at the time of building/tenant turnover. This could be prior to closing to provide transparency to the new owner/occupant about the energy use and any system upgrades that will be needed.

- Owners could pay into a fund if they don't do upgrades. This fund would provide financing for others who want to do upgrades.

- There were suggestions to do pilots with major property owners to prove out some of these concepts. It was pointed out that this has been done through Climate Wise and other Utilities programs.

NEXT MEETING

October 20th – C-TRAC Meeting #10: Code Proposal Development
3-5:30 p.m. City of Fort Collins Streets Facility