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Green Building Program Advisory Committee
Meeting # 2
Topic: Green Building Program Updates
Wednesday July 7, 2010, 3–5 pm

MEETING PARTICIPANTS

Utilities Green Building Team

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

Facilitator

Susanne Durkin-Schindler

Consultant

Judy Dorsey - The Brendle Group

GBPAC Members

Organization/Company	Representative
American Institute of Architects	Fred Roberts
Appraisal Institute/Colorado Chapter	Marge Moore
Citizen	Mark Wanger
Community for Sustainable Energy	Andrew Michler
CSU-Institute for the Built Environment	Brian Dunbar
Everitt Companies	David Everitt
Fort Collins Board of Realtors	Todd Gilchrist
Fort Collins Chamber of Commerce	Ann Hutchinson
Fort Collins Sustainability Group	Andrew Michler
Northern Colorado Renewable Energy Society	John Fassler
Poudre School District	Mike Spearnak
Sage2	Bill Franzen
USGBC-Northern CO branch	Bill Hofmann

Board / Commission	Representative
Building Review Board	Andrea Dunlap
Electric Board	John Graham
Natural Resources Advisory Board	Glen Coltan

Building Officials

Jurisdiction	Representative
City of Fort Collins	Russell Hovland
Larimer County	Tom Garton
Safe Built	Russ Weber

RTRAC Members

Organization/Company	Representative
Armstead Construction	Jeff Schneider
CSU - Institute for the Built Environment	Laura Barrett
Dana McBride Custom Homes	Dana McBride
Fort Collins Board of Realtors	Michelle Jacobs
HighCraft Builders	Gordon Winner
Merten Companies	Rob Ross

C-TRAC Members

Organization/Company	Representative
Fisher Architecture	Greg Fisher

City of Fort Collins Management

Title	Name
Utilities Executive Director	Brian Janonis
Utilities Customer and Employee Relations Manager	Patty Bigner
Utilities Water Engineer Field Operations Manager	Jon Haukaas

Key Points:

Green Building Program Development Overview - Doug Swartz
See Appendix A for Presentation

The Green Building (GB) program development process has been underway since the kickoff event in April. The Technical Review Advisory Committees (TRACs) have been meeting every Wednesday and provide valuable feedback to staff on the development of the green building program. Staff will be presenting the progress that has been made to the GBPAC. This information will also be presented to City Council at the July 13 Work Session.

Background:

The goal of an ongoing GB Program is to increasingly align Fort Collins' built environment with community goals of reduced carbon emissions, reduced energy use and reduced water use.

Green building is not a new concept for Fort Collins. The TRACs were designed to get input from both market leaders in green building and more conventional builders. It is important for the program that is developed, including the code piece, to be a good fit for Fort Collins.

Integration with existing City codes and regulations is also important. Staff does not want a code that will create confusion for builders in the community and be difficult for the City to enforce. GB program staff is trying to work with other City departments as well as community stakeholders to develop a program that is effective, enforceable and has measurable outcomes.

Stakeholder involvement is extremely important to the development of this program. The TRACs are designed to focus on the code aspect of the GB program. However, many of the other elements of GB program are being discussed and committee feedback is helping to develop those elements.

The Green Building Code:

The two templates that are being reviewed for the code piece of the GB program are the National Green Building Standard (NGBS), which was developed for the residential sector, and the International Green construction Code (IgCC), which was developed for the commercial sector. Both of these documents look at the major categories of green building which are based off of the LEED rating system.

A structured review process has been developed to assist staff and the TRACS with reviewing the code documents. This review includes the following:

- What is the intent?
- Is the language clear?
- Already addressed in existing regulations?
  - Where?

  - How well is it working?
- What are qualitative Triple Bottom Line benefits?

Once all of these questions have been addressed, and the input of staff subject matter experts has been obtained, the GB program staff makes their recommendation. That recommendation is then sent to the committee for discussion.

Costs and Benefits:

The Brendle Group is performing costs and benefits and benchmarking research to inform this process. The benchmarking research is looking at how buildings and homes are currently being built in Fort Collins and how those structures compare to these code templates. The costs and benefits analysis is providing information on the cost implications of a green building code in the Fort Collins market.

Status and Observations:

Overall, the development process appears to be working well. TRAC members are actively attending meetings and providing valuable feedback to GB program staff. There TRACs consist of a diverse group of professionals with great opinions and observations. The facilitator for this process ensures that all voices are heard and all input is received.

After working with the two code templates, Staff has made several observations that have helped shape the future direction of this process. Model green building codes:

- Represent great intent
- Different structures
- New – very limited track record
- Room for interpretation (may make enforcement difficult)
- Clarification needed
- Scope is very broad
- Resources needed to document and verify compliance (potentially large)

Based on these observations GB staff has made several suggestions for the direction of this process. Suggested directions include:

- Similar residential + commercial code structures
- Realistic scope for applicants + enforcers
- Focus areas
  - Energy efficiency
  - Water efficiency
  - Performance
- Retain selected GB practices from model codes
  - "Low-hanging fruit"
  - "High-value"
  - Potential lost opportunities

  - Infrastructure exists or getting close
  - Enforceable by City staff
- All selected GB practices mandatory
- Integrate mandatory GB practices with existing regulations rather than standalone GB code

Voluntary Elements:

The voluntary elements of the GB program play in important role in supporting green building in the community. The voluntary piece of the program will help push the market further than the mandatory GB practices. They provide the community with an opportunity to gain experience and build infrastructure. As green building becomes common practice in the community, additional green building practices can migrate from voluntary to mandatory.

Staff is suggesting that the recognition element of the GB program be implemented using existing third party verification systems such as LEED and ENERGY STAR. This would help reduce the need for City resources.

Several incentive ideas have come out of the code review process. These ideas have not yet been researched and developed but include:

- City fee reductions
- Flexibility in development regulations for innovative GB projects
- Subsidize third-party verification costs
- Tax increment reimbursements
- "Feebates"
- Leverage existing City programs

All aspects of the GB program will require additional resources at some level. As this program is further developed, staff will have a better idea of what resources will be necessary to support this effort.

Committee Comments:

- Has there been any additional tracking and performance piece?
  - Staff has not had a lot of time to put into that element. It is something that we are very interested in.

- Has staff been consulting other municipalities to hear what their best practices are for green building programs?
  - There are building officials from other jurisdictions in northern Colorado sitting on the TRACs.

- If the green building code is all integrated, how would the incentives work with that?
  - Codes are supposed to establish the baseline. The incentives will encourage people to go above and beyond. The incentives and rewards will not be a part of the code.

- Fort Collins has some of the lowest electrical rates in the country. It is good on one side, but it does not provide incentives for people to make changes to their energy use. It would be difficult to maintain low rates and encourage incentives. May need to do some things proactively.

Costs and Benefits Analysis Update - Judy Dorsey- The Brendle Group
See Appendix B for presentation

Update on Cost and Benefit Analysis Methodology:

Since the kickoff meeting on April 21st, The Brendle Group has made progress on the development of the cost and benefit analysis (CBA) methodology. In order to obtain feedback specifically on the methodology a special work session was held in mid-May. The work session was attended by members from all of the committees and each provided valuable feedback that assisted with the refinement of the CBA process.

National studies have been done on the costs and benefits of green buildings. However, most of those studies are LEED focused and not based on local market conditions. The idea was to take those national studies and apply them to the Fort Collins market. There are a lot of local green buildings that can provide data for this project and it would be ideal to obtain data on the costs and benefits at the project level and the community level.

The review of national studies has been completed and it was discovered that data is scarce for both conventional and green buildings, both locally and nationally. The Brendle Group is working to get good data that can be used to support the GB program development effort.

Based on feedback from the May CBA meeting, a survey form was developed to obtain data on green building projects in Fort Collins. The goal is to design a survey that has a high enough level of resolution that it provides good data, but not so high that it limits response rates. The Brendle Group would like to get information from at least 12 data points from the residential sector and 25 data points from the commercial sector. Three levels of data collection surveys were developed for each sector: the Basic form, Construction form, and Operations and Maintenance form.

There is a pilot test of the survey methodology currently underway. Several residential and commercial builders have been assisting with the pilot. The survey forms will be available on the GB website at fcgov.com/utilities/gbp-resources.php. So far, The Brendle Group has five homes participating on the residential side and quite a few commercial green buildings between CSU and PSD to choose from. That being said, it would be great to have more data from the private sector. New construction is also great data to have because it gives a good picture of the current market.

Next steps:

The forms will be on the website. If you have comments please send them to greenbuilding@fcgov.com and The Brendle Group will work to incorporate them into the methodology.

Committee Comments:

- Need to define "local." If the Brendle Group is willing to consider data from Loveland, Windsor, and Greely it may help to obtain more data points for the analysis.

- This may be a large undertaking for participants because not all of the data is readily available. Need to figure out what documents contractors have that already exist. Need to look at a format where contractors can just plug in numbers that they already have. Also, there may be some confusion about what data is being asked for. All of those things will impact response rate.

- Appraisals require data from the construction bids. It may be a good idea to see about obtaining appraisal information.

- This may be a ground breaking study for the nation. It could be a good opportunity for the City to partner with CSU and use student resources to assist with research.

Union Place Case Study - Rob Ross- Merten Companies
See Appendix C for presentation

Union Place is a new development at College and Willox that has been underway for the past two years. Merten Companies has taken an innovative approach for this development. This is an urban infill project that is trying to address several green building and sustainability components in its design. These components include stormwater management, sustainable landscape design, energy efficiency, and renewable energy use. Additional information on this project can be obtained from http://www.exploreunionplace.com.

Comments from Presentation

Tax Increment Financing was used to help finance this project. The site was listed as a blighted site which helped Merten Companies receive additional financing which helped make the project viable.

The City has been great to work with to help drive this project forward. Challenges were that we had to make the roads private due to street regulations that are in place. A performance based standard may have made this project development a little easier.

The City was willing to compensate for some of the loss of developable land due to the need for a retention pond. The City is going to be testing the effectiveness of the stormwater technologies on the site.

Appendix A

Green Building Program

City Council Work Session
July 13, 2010

Purpose of Work Session

- Provide update on Green Building Program development progress
- Receive City Council feedback and direction

Guidance Sought

- Is the Green Building Program development process on the right track?
- Will Council consider additional resources for implementation of mandatory green building practices?
- Does Council support green building practices being integrated into existing City regulations rather than as a standalone Green Building Code?
- Would Council like another work session in early 2011 before formally considering the proposed Code package on First Reading on March 15, 2011?

Presentation

- Background
- Progress
- Status and Observations
- Next Steps + Timeline

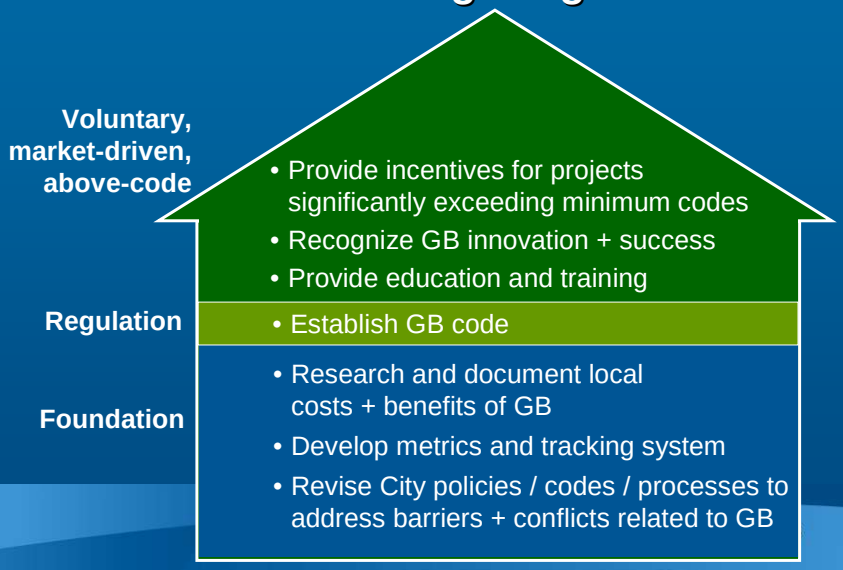
Background

GB Program Goal

The goal of an ongoing Green Building Program is to increasingly align Fort Collins' built environment with community goals of reduced carbon emissions, reduced energy use and reduced water use.

(Other benefits, too)

Green Building Program



GB Program Guiding Principles

- Support GB transition actively underway in the marketplace.
- Support quality building projects that can demonstrate substantive, measurable results.
- Support the development of City processes that are relatively simple and easily navigated.

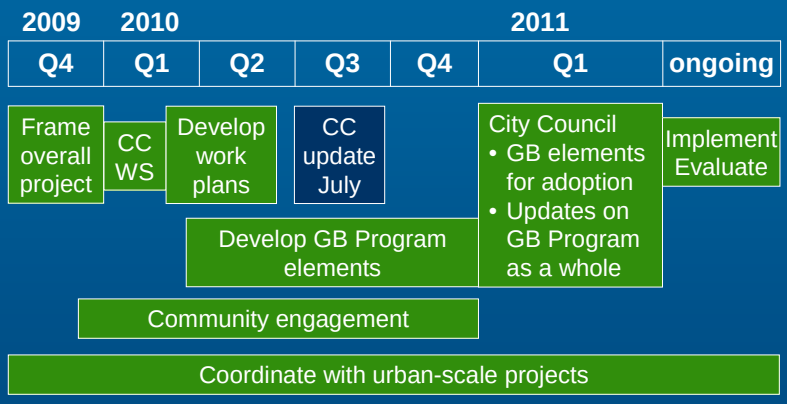
GB Program Guiding Principles

- Dovetail elements addressing individual buildings and lots with neighborhood- and urban-scale green elements.

Advancing GB in Fort Collins

- Community engagement
- Strong interdepartmental collaboration
- Sustained City commitment + resources
- Focus on substance + accountability

Milestones and Timeline



Progress

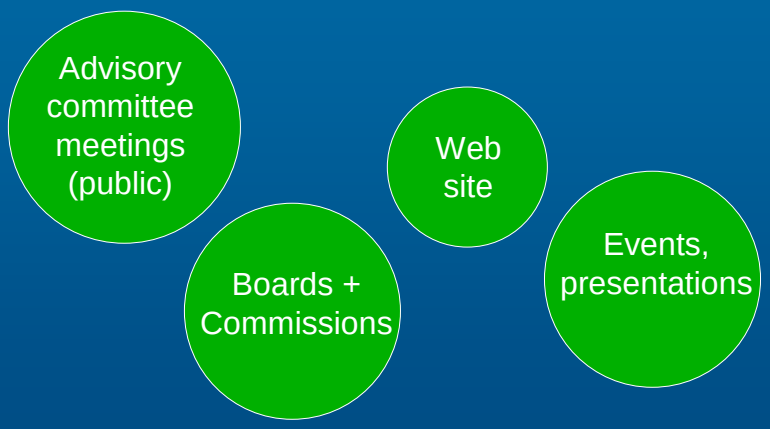
Process / Community Engagement

Process goals

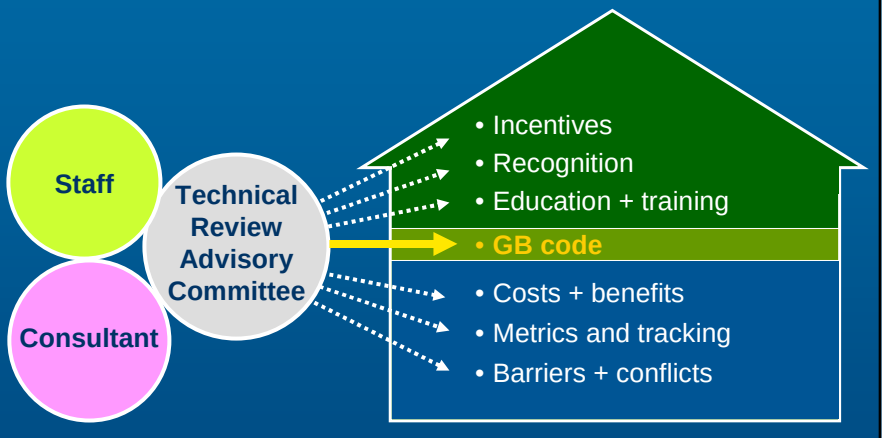
- Broad range of stakeholders
- All views heard
- Transparent
- Effective

Players + Roles

Community Engagement

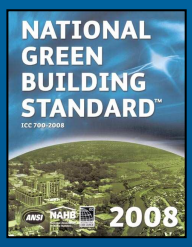


GB Code Review

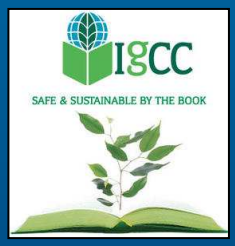


GB Code Review

Residential



Commercial

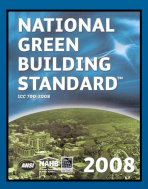


International Green Construction Code

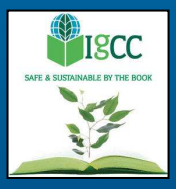
Good community fit

City of Fort Collins

GB Code Review



Green Building Categories Addressed
Site + Lot Development
Resource Efficiency
Energy Efficiency
Water Efficiency
Indoor Environmental Quality
Commissioning, Operations + Maintenance, Owner Education



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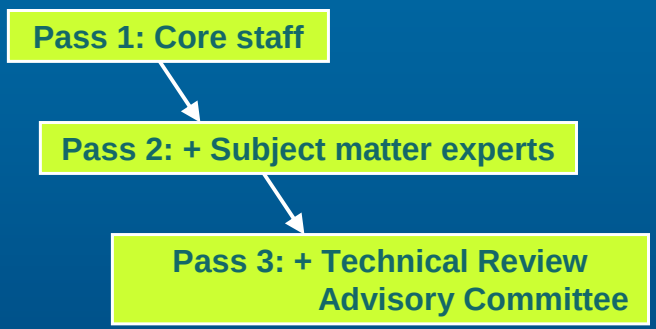
GB Code Review

Structured review process – every GB practice

- What is intent?
- Is language clear?
- Already addressed in existing regulations?
  - Where?
  - How well is it working?
- What are qualitative Triple Bottom Line benefits?
- Recommendation

GB Code Review



Approximately one-third complete

GB Code Review

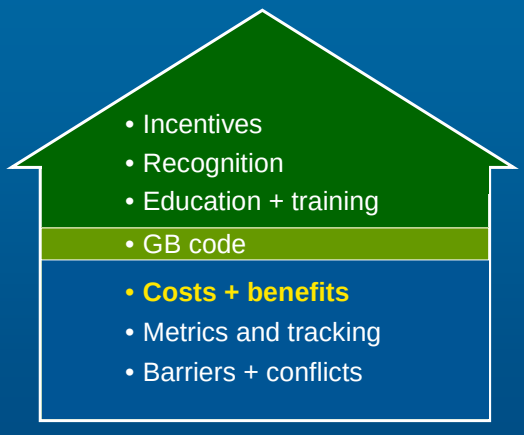
Benchmarking

- Rank actual projects on model codes
- Evaluate benefits + costs to reach higher levels
- Assess practical issues

Green Category	Builder 1 Remodel	Builder 2 Affordable	Builder 3 Small Production	Builder 4 Large Green Custom
Resource Efficiency				
Energy Efficiency				
Water Efficiency				
Indoor Environmental Quality				
Operation				
TOTAL POINTS				
PERFORMANCE LEVEL				

Costs + Benefits Analysis

- Research and document local costs + benefits of GB
- Inform GB Program development + decision-making
- Generate ideas for balancing benefits + costs



Costs + Benefits Analysis

- National studies reviewed
- Methodology established
- Pilot test of methodology underway

Caution: Data scarce

Status + Observations

Process

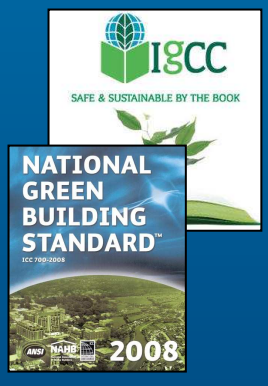
Process is working well

- Broad mix of stakeholders
- Diverse opinions
- Systematic way for views to be heard
- Good collaboration among City departments

Green Building Code

Model GB codes

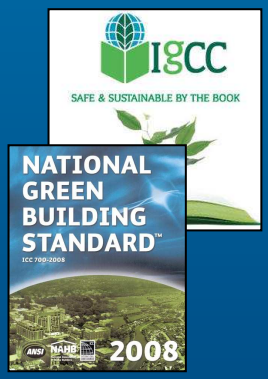
- Represent great intent
- Different structures
- New – very limited track record



Green Building Code

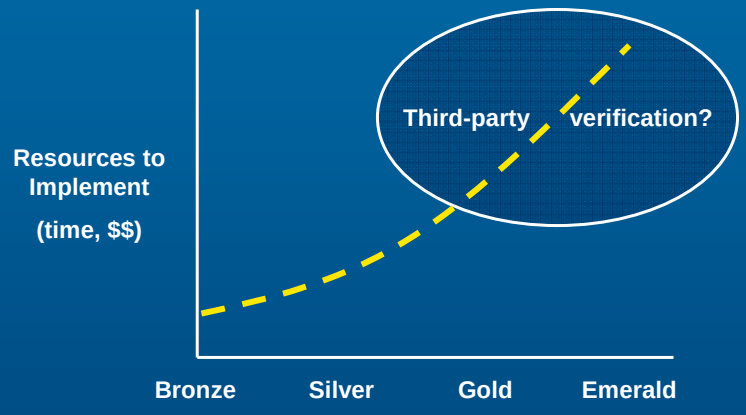
Model GB codes

- Room for interpretation
- Much clarification needed
- Scope very broad
- Resources to document + verify compliance potentially large



City of Fort Collins

Green Building Code



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Green Building Code

Suggested direction

- Similar residential + commercial code structures
- Realistic scope for applicants + enforcers
- Focus areas
  - Energy efficiency
  - Water efficiency
  - Performance

Green Building Code

Suggested direction

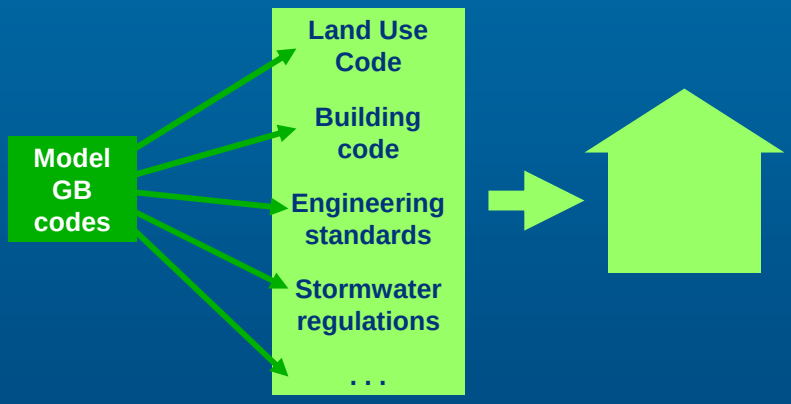
- Retain selected GB practices from model codes
  - “Low-hanging fruit”
  - “High-value”
  - Potential lost opportunities
  - Infrastructure exists or getting close
  - Enforceable by City staff

Green Building Code

Suggested direction

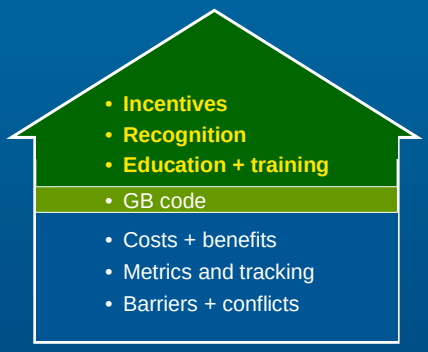
- All selected GB practices mandatory
- Integrate mandatory GB practices with existing regulations rather than standalone GB code

Green Building Code



Voluntary Elements

- Broader + further than code core GB practices
- Gain experience
- Build infrastructure
- Track performance
- With maturity, additional GB practices migrate from voluntary to mandatory



City of Fort Collins

Voluntary Elements: Recognition

Suggested direction

- Utilize existing rating systems / infrastructure
- Determine recognition level(s) City will support

GREEN GLOBES · ENERGY STAR · NATIONAL GREEN BUILDING STANDARD · U.S. GREEN BUILDING COUNCIL LEED USGBC

Note: third-party verification costs

City of Fort Collins

Voluntary Elements: Incentives

Constraints

- City budget
- Fast-tracking

Voluntary Elements: Incentives

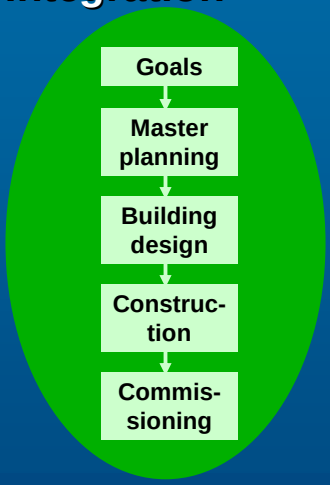
Early ideas - all need study + development

- City fee reductions
- Flexibility in development regulations
- Subsidize third-party verification costs
- Tax increment reimbursements
- “Feebates”

+ Leverage Utilities incentives

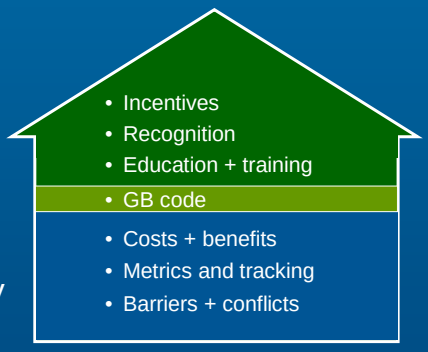
Voluntary Elements: Integration

- Greater positive impacts at lower cost
- No easy recipe
- Not driven by code
- Flexibility in City requirements will facilitate innovation

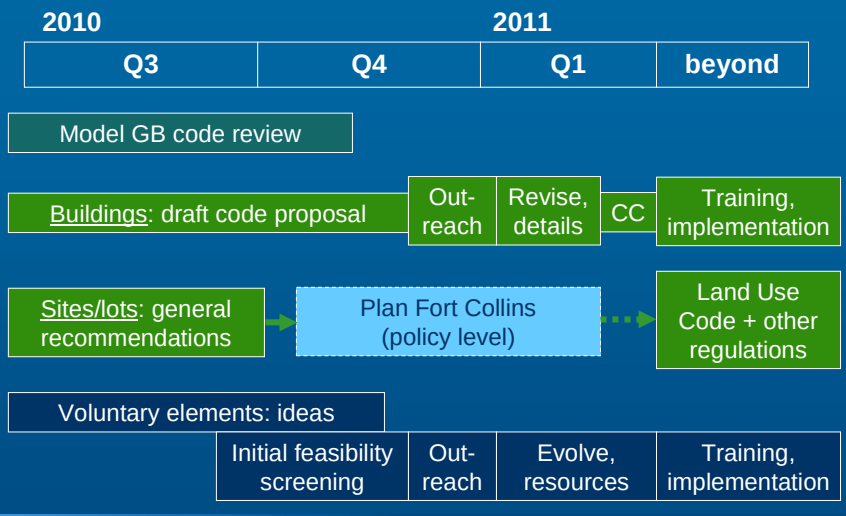


Resources

- Moving GB faster in Fort Collins → resources
- Resources from owners
- Resources from City
  - Full development of all GB Program elements
  - Implementation
  - Evaluation
- Current project will roughly estimate resource needs



Next Steps Timeline



Guidance Sought

- Is the Green Building Program development process on the right track?
- Will Council consider additional resources for implementation of mandatory green building practices?
- Does Council support green building practices being integrated into existing City regulations rather than as a standalone Green Building Code?
- Would Council like another work session in early 2011 before formally considering the proposed Code package on First Reading on March 15, 2011?

Appendix B

Fort Collins Green Building Program

Cost + Benefits Analysis

July 7, 2010

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Engineering Sustainable Change

Today's Objectives

- Present CBA methodology
- Share early results from pilot
- Discuss modifications to the methodology
- Recruit volunteers for submitting project data

Since we last met…

- April 21 – GBPAC Kick-Off
- May 17 – Sub-group work session
- May-June – Draft and iterations on methodology
- June 28 – Pilot test of data collection forms

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Engineering Sustainable Change

Objectives: With Market Transformation in Mind…

National Studies

+

Local Conditions

→

Analysis:

- Transparent
- Well Documented
- Quantitative & Qualitative
- Detail Commensurate with Decision-Making

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Engineering Sustainable Change

Review of National Studies

- Data is scarce for both conventional and green buildings, both nationally and locally
- "Comparisons can be manipulated to help prove the point."
- Even still, national studies will help to corroborate and round out local data

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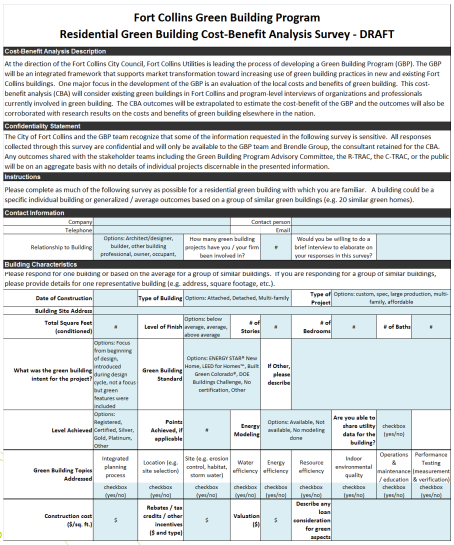
Methodology Development: Data Collection Survey



Fort Collins Green Building Program
Residential Green Building Cost-Benefit Analysis Survey - DRAFT

Cost-Benefit Analysis Description

At the direction of the Fort Collins City Council, Fort Collins Utilities is leading the process of developing a Green Building Program (GBP). The GBP will be an integrated framework that supports market transformation toward increasing use of green building practices in new and existing Fort Collins buildings. One major focus in the development of the GBP is an evaluation of the local costs and benefits of green building. This cost-benefit analysis (CBA) will consider existing green buildings in Fort Collins and program-level interviews of organizations and professionals currently involved in green building. The CBA outcomes will be extrapolated to estimate the cost-benefit of the GBP and the outcomes will also be corroborated with research results on the costs and benefits of green building elsewhere in the nation.

Confidentiality Statement

The City of Fort Collins and the GBP team recognize that some of the information requested in the following survey is sensitive. All responses collected through this survey are confidential and will only be available to the GBP team and Brendle Group, the consultant retained for the CBA. Any outcomes shared with the stakeholder teams including the Green Building Program Advisory Committee, the R-TRAC, the C-TRAC, or the public will be on an aggregate basis with no details of individual projects discernable in the presented information.

Instructions

Please complete as much of the following survey as possible for a residential green building with which you are familiar. A building could be a specific individual building or generalized / average outcomes based on a group of similar green buildings (e.g. 20 similar green homes).

Contact Information

Company				Contact person					
Telephone				Email					
Relationship to Building	Options: Architect/designer, builder, other building professional, owner, occupant.		How many green building projects have you / your firm been involved in?	#	Would you be willing to do a brief interview to elaborate on your responses in this survey?				

Building Characteristics

Please respond for one building or based on the average for a group of similar buildings. If you are responding for a group of similar buildings, please provide details for one representative building (e.g. address, square footage, etc.).

Date of Construction		**Type of Building**	Options: Attached, Detached, Multi-family		**Type of Project**	Options: custom, spec, large production, multi-family, affordable			
Building Site Address									
Total Square Feet (conditioned)	#	**Level of Finish**	Options: below average, average, above average	**# of Stories**	#	**# of Bedrooms**	#	**# of Baths**	#
What was the green building intent for the project?	Options: Focus from beginning of design, introduced during design cycle, not a focus but green features were included	**Green Building Standard**	Options: ENERGY STAR® New Home , LEED for Homes™, Built Green Colorado®, DOE Buildings Challenge, No certification, Other	**If Other, please describe**					
Level Achieved	Options: Registered, Certified, Silver, Gold, Platinum, Other	**Points Achieved, if applicable**	#	**Energy Modeling**	Options: Available, Not available, No modeling done	**Are you able to share utility data for the building?**	checkbox (yes/no)		
Green Building Topics Addressed	Integrated planning process	Location (e.g. site selection)	Site (e.g. erosion control, habitat, storm water)	Water efficiency	Energy efficiency	Resource efficiency	Indoor environmental quality	Operations & maintenance / education	Performance Testing (measurement & verification)
	checkbox (yes/no)	checkbox (yes/no)	checkbox (yes/no)	checkbox (yes/no)	checkbox (yes/no)	checkbox (yes/no)	checkbox (yes/no)	checkbox (yes/no)	checkbox (yes/no)
Construction cost ($/sq. ft.)	$	**Rebates / tax credits / other incentives ($ and type)**	$	**Valuation ($)**	$	**Describe any loan consideration for green aspects**			

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Engineering Sustainable Change

Data Collection Survey – Key Questions

- Construction and O&M costs
  - Resolution
  - Approach
- Valuation of green features – are we asking the right questions?
- Would you be able to respond to these questions?
  - Availability of information
  - Treatment of confidentiality
- Survey length

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Engineering Sustainable Change

Target Number of Data Points and Data Sources for Building-level Surveys

	Estimated # of Existing Green Buildings	Target # of Data Points
Residential	~25 (>1,900 with ENERGY STAR)	12
Commercial	~50	25

Residential: LEED-H™, Built Green®, ENERGY STAR®, R-TRAC

Commercial: IDAP, LEED-NC™, C-TRAC

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Revised Data Collection Framework

- Three levels of data collection
  - BASIC - building characteristics and total construction cost
  - CONSTRUCTION- more detailed information on construction cost of the building by component
  - OPERATIONS & MAINTENANCE- more detailed information on the operations and maintenance performance of the building
- Pilot test of methodology underway

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Next Steps

- ***July 7, 2nd GBPAC meeting – progress and input***
- July 13, City Council work session
- ***July 16, Final comments from GBPAC on methodology***
- Follow-up interviews to data collection forms
- Finalize methodology and continue data collection
- Compile-analyze-understand
- Draft report
- Report review by stakeholders
- Final report

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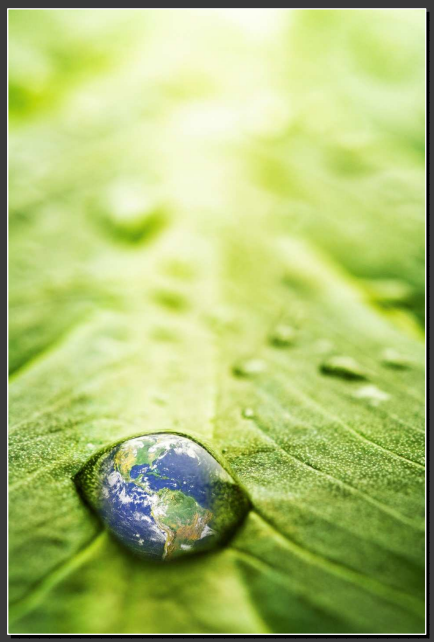
Appendix C

UNION PLACE

Merten Design Studio
Robert Ross



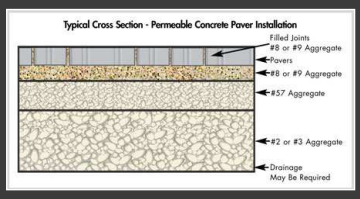
OVERVIEW

- Project Description
- Merten Design\Build
- Sustainable Improvements
- Site Perspectives

- Walkable urban infill & Mixed Use development on 10.2 acres (Single & Multi Family & Commercial)
- Large percentage of affordable housing on site
- Various storm water management practices, renewable energy systems, low energy site lighting, & smart landscaping
- Attempting LEED Neighborhood Development through the USGBC

Merten Inc.

•Design Build firm - estb. 2006
•Our mission is simple: To build innovative designs that possess quantifiable eco-elegance – homes in which unique design and unsurpassed comfort are paired with the responsible use of resources, materials, and energy.
•Took on Union Place in order to implement sustainable elements from the planning and site infrastructure phase.



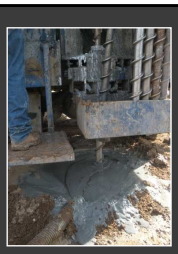
Storm water management practices: Infiltration methods

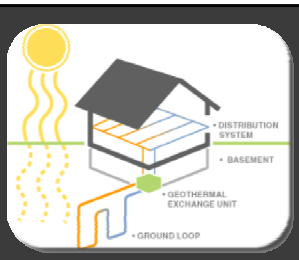
- Permeable pavements (concrete pavers & flex-i-pave) – stores water in gravel beds for percolation
- Reduce hardscape areas
- Bioswales – slows water movement across softscapes for increased infiltration
- Rain gardens – gutters drain into infiltration trenches
- The above methods allow for reductions and elimination of storm sewer piping

Paver Color Selection

Flex-i-pave section

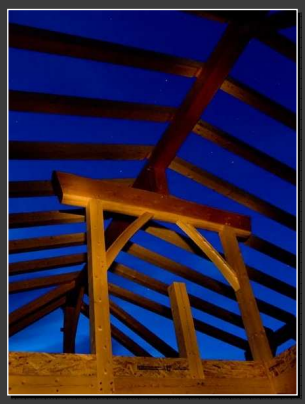
Bioswale

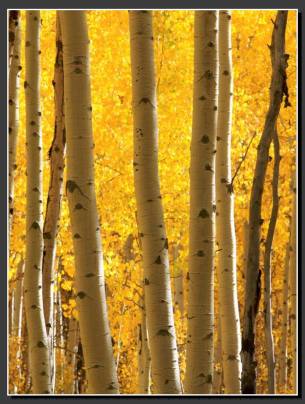




Renewable energy systems: Geothermal & Photovoltaic

- Ground Source Heat Pumps - All electric forced air heating and cooling system
- GSHP - lower operating (4 units of energy for ever one unit of electrical energy) and life cycle costs
- GSHP - All electric system eliminates combustion therefore no carbon monoxide
- PV systems - to reduce energy requirements from grid and potentially achieve a net-zero community





Site Lighting:

•Low energy consumption & high quality white light

•Dark sky compliant – reduces light pollution for better night sky viewing

Landscaping:

•Xeriscaping - native species that are usually drought tolerant and requiring less water from city supply

•Additional street trees – shades buildings & hardscapes reducing heat & cooling loads and heat island effect

UNION PLACE : Sustainable Improvements

Perspective looking North East

Perspective looking East down Green Leaf Street

Perspective looking North East down Urban Prairie Street

UNION PLACE : Site Perspectives

View looking North West

View looking West

View looking East

Mason Street

Willox Lane

UNION PLACE : Current site pictures