FLORIDA BUILDING COMMISSION

2010 FLORIDA ENERGY CODE WORKGROUP

December 9, 2009—Meeting IX

Rosen Centre Hotel; 9840 International Drive, Orlando Florida 32819; 1.800.204.7234

Meeting Objectives

- ✓ To Approve Regular Procedural Topics (Agenda and Summary Report)
- ✓ To Hear FSEC Report Regarding Small Building Prescriptive Compliance Method Analysis
- ✓ To Review and Discuss 2010 FEC Commercial Chapter Draft Code Mark-Up
- ✓ To Discuss Specific Building Technologies/Options to Achieve Energy Efficiency Improvements*
- ✓ To Identify Issues and Options Regarding Project Tasks and Sub-Tasks (Future Meeting)
- ✓ To Discuss and Evaluate Level of Acceptability of Proposed Options
- ✓ To Consider Public Comment
- ✓ To Identify Needed Next Steps and Agenda Items for Next Meeting

All Agenda Times—Including Public Comment and Adjournment—Are Subject to Change

Meeting Agenda

1:00 **Welcome and Opening**

Agenda Review and Approval

Approval of November 12, 2009 Facilitator's Summary Report

FSEC Report on Small Building Prescriptive Compliance Method Analysis

FEC Commercial Chapter Draft Code Mark-Up Review and Discussion

Specific Building Technologies/Options to Achieve Energy Efficiency Improvements Discussion—Section 553.9061 (2)(a - h), F.S.—{Technologies/options including: solar water heating; energy-efficient appliances; energy-efficient windows, doors, and skylights; low solar-absorption roofs; enhanced ceiling and wall insulation; reduced-leak duct systems; programmable thermostats; and, energy efficient lighting systems.}

Future Meeting(s):
Discussion, Identification and Evaluation in Turn of Issues and Options Regarding Remaining Project Tasks and Sub-Tasks—Humidity and moisture control problems; Energy efficient pools systems; Green roofs and cool roofs; and, 2010 FBC energy requirements.

General Public Comment

Review of Workgroup Delivery and Meeting Schedule

Next Steps: Agenda Items, Needed Information, Assignments, Date & Location

Adjourn

** Note: The Workgroup will not be considering specific code amendments.*

Contact Information and Project Webpage
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FSU CONSENSUS CENTER

2010 Florida Energy Code Workgroup
Steve Bassett, Rusty Carroll, Bob Cochell, Phillip Fairey, Dale Greiner, Jeff Gross, Jeff Householder, Bill Kent, Tom Larson, Larry Maxwell, Donny Pittman, Paul Savage, Drew Smith, Jeff Stone, and Rob Vickers.

Meeting Dates
February 3, 2009: Melbourne, March 5, 2009: Cape Canaveral, March 27, 2009: Tampa, April 30, 2009: Tallahassee, May 28, 2009: Tallahassee, September 3, 2009: Gainesville, October 14, 2009: Tampa; November 12, 2009: Gainesville; December 9, 2009: Orlando; February 3, 2010: Tampa.

OVERVIEW AND PROJECT SCOPE

Governor Crist directed the Commission to increase building energy efficiency requirements by 15% in his July 2007 Executive Order 127. In addition, the 2008 Legislature through passage of The Energy Act of 2008 created a suite of energy related assignments for the Building Commission. The Energy Code provisions were a major focus of the Commission during 2008, and the Commission increased the thermal efficiency requirements for the Florida Energy Code by 15% and integrated the enhanced requirements into the 2007 Florida Building Code. The Commission reviewed energy related code amendments adopted in the 2007 Florida Building Code Update to determine their cumulative level of increased efficiency, and adopted additional amendments required to achieve Governor Crist's directive of 15% increased efficiency. During 2008 the Energy Code was amended by administrative rule and then the revised Energy Code was adopted into the 2007 Florida Building Code during the 2008 "glitch" cycle concurrently with the March 1, 2009 effective date for the 2007 Florida Building Code. Working with stakeholders using consensus-building workgroups, the Commission was able to achieve the 15% increase in efficiency in buildings and implement code amendments that are efficient, consistent, understandable and enforceable for the full spectrum of Energy Code users.
The Commission's Energy Code Workgroup will develop recommendations regarding energy conservation measures for increasing efficiency requirements in the 2010 FBC by 20% as required by law.

Study Energy Conservation Measures and Develop a Plan for 20% Increased Efficiency Requirement for 2010 FBC
Section 109, HB 7153 establishes a schedule for increases in building energy efficiency requirements. This task expands the study of energy conservation measures for residential buildings to investigation of efficiency options for commercial buildings and the development of a plan to implement the requirements of the new law. Section 553.9061 "Scheduled increases in thermal efficiency standards." was created to establish percent increases in efficiency to be implemented in the 2010, 2013, 2016 and 2019 Code.

With the adoption of the Glitch Amendments to the 2007 Edition of the Florida Building Code and the revisions to Rule 9B-13 Thermal Efficiency Standards, the Commission implemented a strategy for increasing the energy efficiency provisions of the Code by 15%. The Commission's Energy Code Workgroup and Energy TAC are working with stakeholder to evaluate options for achieving an additional 5% increase for the 2010 Edition of the Code, and for achieving the progressive increases in efficiency required for subsequent editions of the code.

Develop Rule for Energy Code Cost Effectiveness Test
Section 109, HB 7153 directs the Commission develop a rule for determining cost effectiveness of energy conservation measures to be considered for inclusion in the Florida Energy Code. The rule must be completed and applied to the update of the energy provisions of the for the 2010 Florida Building Code.
"(3) The Florida Building Commission shall, prior to implementing the goals established in subsection (1), adopt by rule and implement a cost-effectiveness test for proposed increases in energy efficiency. The cost-effectiveness test shall measure cost-effectiveness and shall ensure that energy efficiency increases result in a positive net financial impact."
The Commission will be working with stakeholders during 2009 to develop cost effectiveness test criteria to be applied to justification for increased residential building energy efficiency requirements.

The Commission will conclude rule making in time for the adopted rule to be effective prior to the 2010 Code adoption process.

Identify Specific Building Options to Achieve the Energy Efficiency Improvements
The Energy Act of 2008 (HB 7135) directs the Commission to include, as a minimum, certain technologies for achieving enhanced building efficiency targets established by the Act in the Florida Energy Code. The Building Code Act of 2008 (HB 697) directs the Commission to facilitate and promote the use of certain renewable energy technologies.
The Commission's Energy Code Workgroup will work with stakeholders beginning in early 2009 on a comprehensive evaluation of options for achieving energy efficiency initiatives for the Florida Building Code including: mandated increases in energy efficiencies for subsequent editions of the Code, criteria for cost effectiveness test for increases in energy efficiency, studying energy conservation measures for replacement of air conditioning equipment, and investigating humidity and moisture control problems for hot and humid climates.

Develop Design Criteria for Energy Efficient Pool Systems
The Energy act of 2008 (HB 7135) directs adoption of pool pump efficiencies in the 2010 Code. During discussions with the Florida Spa and Pool Association regarding energy efficiency requirements for pool pumps members suggested improved efficiency could be achieved through criteria for pool hydronic system design. This initiative would be conducted in coordination with the national industry and other state's initiatives currently underway.

Investigate Humidity Control Problems for Hot and Humid Climates
At the recommendation of the Energy TAC, the Commission convened a Regional AC Efficiency Workgroup since the USDOE now has authority to develop and adopt regional AC efficiency standards. The Workgroup was charged with developing recommendations on whether the Commission and DCA should recommend to the United States Department of Energy (USDOE) regional AC efficiency standards for the hot and humid climate, and if determined a regional standard is a good strategy, then to develop recommendations for the technical requirements. The Workgroup investigated the feasibility of a hot-and-humid climate regional efficiency rating for air-conditioner and heat-pump systems, and recommended that the Commission should develop recommendations regarding AC equipments' role in controlling humidity and moisture in buildings.

Following the first meeting, the scope of the Workgroup was changed to develop recommendations regarding AC equipments' role in controlling humidity and moisture in buildings in a hot and humid climate. The Workgroup is tasked with considering a range of issues and options regarding the manufacturing, design and installation of AC equipment in controlling moisture and preventing mold and mildew in the hot and humid Florida climate.

In addition, air conditioning contractors raised the concern that building energy efficiency optimization, commodity grade air conditioning systems and mechanical systems construction practices are combining to cause indoor humidity control problems.

Study Energy Conservation Measures for Replacement of Air Conditioning Equipment
This task is a recommendation of the Commission's Energy TAC resulting from consideration of Energy Code amendment proposals regarding replacement air-conditioning systems at the October 2008 meeting.

553.9061 Scheduled Increases In Thermal Efficiency Standards.--

(1) The purpose of this section is to establish a schedule of increases in the energy performance of buildings subject to the Florida Energy Efficiency Code for Building Construction. The Florida Building Commission shall:

(a) Include the necessary provisions by the 2010 edition of the Florida Energy Efficiency Code for Building Construction to increase the energy performance of new buildings by at least 20 percent as compared to the energy efficiency provisions of the 2007 Florida Building Code adopted October 31, 2007.

(b) Increase energy efficiency requirements by the 2013 edition of the Florida Energy Efficiency Code for Building Construction by at least 30 percent as compared to the energy efficiency provisions of the 2007 Florida Building Code adopted October 31, 2007.

(c) Increase energy efficiency requirements by the 2016 edition of the Florida Energy Efficiency Code for Building Construction by at least 40 percent as compared to the energy efficiency provisions of the 2007 Florida Building Code adopted October 31, 2007.

(d) Increase energy efficiency requirements by the 2019 edition of the Florida Energy Efficiency Code for Building Construction by at least 50 percent as compared to the energy efficiency provisions of the 2007 Florida Building Code adopted October 31, 2007.

(2) The Florida Building Commission shall identify within code support and compliance documentation the specific building options and elements available to meet the energy performance goals established in subsection (1). Energy efficiency performance options and elements include, but are not limited to:

(a) Solar water heating.

(b) Energy-efficient appliances.

(c) Energy-efficient windows, doors, and skylights.

(d) Low solar-absorption roofs, also known as "cool roofs."

(e) Enhanced ceiling and wall insulation.

(f) Reduced-leak duct systems.

(g) Programmable thermostats.

(h) Energy-efficient lighting systems.

(3) The Florida Building Commission shall, prior to implementing the goals established in subsection (1), adopt by rule and implement a cost-effectiveness test for proposed increases in energy efficiency. The cost-effectiveness test shall measure cost-effectiveness and shall ensure that energy efficiency increases result in a positive net financial impact.

Analysis of Code Impacts of H.R. 2454 American Energy Security Act

Summary:
As with the AARA, the ACESA requires states to adopt and enforce energy efficiency building codes. At least two sets of funds and or allotments designated for states require certification of compliance to national building selected and updated by the US DOE.
Also, the targets for increased energy efficiency requirements for the national code established by the bill are more aggressive than those established by Florida law.

Titles of Interest:
Title II, Subtitles A & B

Sec. 201	Building Codes
Sec. 204	Building Performance Labeling Program
Sec. 211	Lighting Efficiency Standards
Sec. 212	Other Appliance Efficiency Standards
Sec. 213	Appliance Efficiency Determinations and Procedures
Sec. 215	WaterSource
Sec. 218	Certified Stoves Program
Sec. 219	Energy Star Standards

Energy Code Required Improvements:
Improvement referenced to –

- Residential 2006 IECC
- Commercial2004 ASHRAE Std 90.1

Schedule of improvement **targets** –

Effective date of the bill	30%
2017 Res/2018 Com	50%
2020 Res/2021 Com	5% additional
2023 Res/2024 Com	5% additional
2026 Res/2027 Com	5% additional
2029 Res/2030 Com	5% additional
2033 and beyond	DOE to set target

- Building code complying with target within 1 year of the target date
- DOE can modify target lower or higher based on cost effectiveness.
- Cost effectiveness to consider externalities, e.g. climate change and peak energy demand.
- If there is a national consensus code that meets the target improvement at the 1 year from target time point then it becomes the national building code.
- DOE to support development of consensus codes and standards.

For residential code DOE to consider:
- ASHRAE standards
- IECC
- RESNET data on measures to qualify for tax credits
- DOE Build America Program
- Energy Star Program data
- New Building Institute data
- State and local standards for cool roof

For commercial code DOE to consider:
- ASHRAE codes
- IECC
- Core Performance Criteria of NBI
- Commercial High-Performance Green Building Office of DOE data
- Energy Star
- RESNET data
- Cool roofs of state & local codes

If DOE selects a consensus model code it must:
- Notify state and local entities
- Provide distribution on internet and to state and local entities at no cost
- Contract with an entity to provide training
- Can give grants to the entity
- Provide input to the model code process for how to achieve the next target

States shall:
- Within 1 year – certify equivalence of state code or adoption of national code to DOE (for states that adopt the energy code).
- DOE has 90 days to accept or reject certification.
- Within 2 years states must certify it has achieved compliance based on 90 percent and measures adopted by DOE or equivalent.

Incentives to states:
Incentive for compliance –
- For states with certifications accepted by DOE will get state allowances "pursuant to 782(g)(2) of the "Clean Air Act""
- 1/5 of total in equal amount allotted to all states
- 2/5 based on state energy use
- 2/5 based on construction starts/new building permits
- Amount not used due to states not in compliance will be distributed to state in compliance.
- In states where locals enforce the code a minimum of 50% of the state's allowance must go to the local governments based on population.
- DOE is provided $100,000,000 annually for supporting this section.

Penalty for non-compliance –
- State does not get its Emission Allowances
- State does not get $ in excess of its share of the $125,000,000 annual allocation to DOE under sec. 323 of the bill.

Penalty schedule –
Additional (beyond base allowance) reduced by:
- 25% year 1
- 50% year 2
- 75% year 3
- 100% year 4 and later

State Emission Allowances –
2012 – 2050
Deposited into the state's SEED account
- 1/3 Equal amounts to states
- 1/3 Prorated by population
- 1/3 Prorated by state energy use

Use of Allowances –
(2) (A) Building Code
(B) Energy Efficiency Manufactured Home Program
(C) Building Energy Performance Labeling Program
(D) Smart Grid
(E) Transportation Planning
(F) Low income community Energy Efficiency Programs
(G) Other cost effective Energy Efficiency programs for end use customers

(3) REEP – Retrofit Energy and Environmental Performance

(4) Capital grants, tax credits, production incentive loans, loan guarantees, forgivable loans, and interest buy-down

Schedule for allowances –
- 15% for (2)
- 12.5% for pass through to local governments
- 5% for (3)
- 20% for (4)
- 47.5% for (2)(A)-(F), (3) and (4)

WORKGROUP'S CONSENSUS RECOMMENDATIONS

1.A. ENERGY EFFICIENCY COST-EFFECTIVENESS TESTS FOR RESIDENTIAL CODE CONSENSUS RECOMMENDATIONS

The Florida Legislature directed the Commission to develop a rule for determining cost effectiveness of energy conservation measures to be considered for inclusion in the Florida Energy Code. The rule must be completed and applied to the update of the energy provisions of the for the 2010 Florida Building Code.

"(3) The Florida Building Commission shall, prior to implementing the goals established in subsection (1), adopt by rule and implement a cost-effectiveness test for proposed increases in energy efficiency. The cost-effectiveness test shall measure cost-effectiveness and shall ensure that energy efficiency increases result in a positive net financial impact."

Energy Analysis Calculations Methodology

Energy analysis necessary to determine energy savings for Energy Conservation Measures (ECMs) be accomplished using Florida's code compliance software, EnergyGauge®.

Energy simulation analysis will be conducted for both single ECMs and packages of ECMs.

Economic Analysis Assumptions

Energy Conservation Measure (ECM) costs will be the full, installed incremental cost of improvements, where the incremental cost is equal to the difference between the baseline measure cost and the improved measure cost unencumbered by any federal tax credits, utility incentives or state rebates.

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Study Life Period

The analysis for residential buildings shall be conducted over a 30 year study period.

ECM Service Life

The evaluation shall be conducted using the appropriate service lives of the measures.

Home Mortgage Parameter Values

Mortgage interest rate: the greater of the most recent 5-year average and 10-year average simple interest rate for fixed-rate, 30-year mortgages computed from the Primary Mortgage Market Survey (PMMS) as reported by Freddie Mac.

Mortgage down payment: 10%.

Annual Rate Parameter Values

General inflation rate: the greater of the most recent 5-year and 10-year Annual Compound Interest Rate (ACIR) computed from the annual average Consumer Price Index (CPI) as reported by the U.S. Bureau of Labor Statistics.

Discount rate: General inflation rate plus 2%.

Fuel escalation rate: the greater of 5-year and 10-year ACIR computed from revenue-based prices as reported by Florida Public Service Commission minus the general inflation rate.

The baseline electricity and natural gas prices used in the analysis shall be the statewide, revenue-based average residential price for the most recent available 12 months as provided by the Florida Public Service Commission.

Cost Effectiveness Criteria

For present value cost-to-benefit ratio (PVCB) a value of 1.0 or greater.

For the internal rate of return (IRR) on investments, a value equal to 8%. {The recommended value is approximately 1.5% greater than the guaranteed return on State of Florida DROPS (retirement account) investments and is considered large enough that any rational investor would consider the investment wise compared with any other long-term investment.}

*For the levelized cost of conserved energy (LCCE), a value equal to the statewide residential revenue-based retail cost of electricity adjusted at the fuel escalation rate over one-half of the life of the measure (yields average over the measure life). {This is based on the fact that, over their life, accepted measures will cost consumers the same or less than purchasing electricity from the utility, where: LCCE criteria = (current price) * [(1+fuelEsc) ^ (life/2)].}*

Evaluation Methodology for Measures and Packages of Measures

Create multiple packages of ECMs that result in the target % efficiency increase for each code cycle update (20, 30, 40 and 50%), based on comparison to the 2007 FBC as adopted October 31, 2007 (without the 2009 supplement).

Evaluate each ECM using adopted cost effectiveness indicators (PVBC, IRR, LCCE), within their specific package of ECMs. PVBC will be considered the primary measure with IRR and LCEE used as measures for illustration and communication of individual ECMs and packages of ECMs comparative economic viability.

Validation of the cost effectiveness of Florida Energy Efficiency Code for Building Construction changes shall mean that a number of ECM packages evaluated to comply with the statutory percent energy efficiency increase requirements have a greater benefit than cost as measured in present value dollars.

1.B. ENERGY EFFICIENCY COST-EFFECTIVENESS TESTS FOR COMMERCIAL CODE CONSENSUS RECOMMENDATIONS

Energy Analysis Calculations Methodology

Energy analysis necessary to determine energy savings for Energy Conservation Measures (ECMs) will be accomplished using Florida's code compliance software, EnergyGauge®.

Energy simulation analysis will be conducted for both single ECMs and packages of ECMs.

Economic Analysis Assumptions

Energy Conservation Measure (ECM) costs will be the full, installed incremental cost of improvements, where the incremental cost is equal to the difference between the baseline measure cost and the improved measure cost unencumbered by any federal tax credits, utility incentives or state rebates.

Energy Conservation Measure (ECM) costs will be the full, installed incremental cost of improvements, where the incremental cost is equal to the difference between the baseline measure cost and the improved measure cost unencumbered by any federal tax credits, utility incentives or state rebates, with option to consider encumbering utility incentives, etc. later, if possible.

Study Life Period

The analysis for commercial buildings shall be conducted over a 30 year study period with appropriate service lives included in the analysis.

ECM Service Life

The evaluation shall be conducted using the appropriate service lives of the measures.

Mortgage Parameter Values

Mortgage interest rate: the greater of the most recent 5-year average and 10-year average simple interest rate for fixed-rate, 30-year mortgages computed from the Primary Mortgage Market Survey (PMMS) as reported by Freddie Mac, rate plus 2%.

Mortgage down payment: 20%.

Annual Rate Parameter Values

General inflation rate: the greater of the most recent 5-year and 10-year Annual Compound Interest Rate (ACIR) computed from the annual average Consumer Price Index (CPI) as reported by the U.S. Bureau of Labor Statistics.
Discount rate: General inflation rate plus 2%.

Fuel escalation rate: the greater of 5-year and 10-year ACIR computed from revenue-based prices as reported by Florida Public Service Commission minus the general inflation rate.

The baseline electricity and natural gas prices used in the analysis be the statewide, revenue-based average commercial price for the most recent available 12 months as provided by the Florida Public Service Commission.

Cost Effectiveness Criteria

For present value cost-to-benefit ratio (PVCB) a value of 1.0 or greater.

For the internal rate of return (IRR) on investments, a value equal to 7%.

*For the levelized cost of conserved energy (LCCE), a value equal to the statewide commercial revenue-based retail cost of electricity adjusted at the fuel escalation rate over one-half of the life of the measure (yields average over the measure life). {This is based on the fact that, over their life, accepted measures will cost consumers the same or less than purchasing electricity from the utility, where: LCCE criteria = (current price) * [(1+fuelEsc) ^ (life/2)].}*

Evaluation Methodology for Measures and Packages of Measures

Create multiple packages of ECMs that result in the target % efficiency increase for each code cycle update (20, 30, 40 and 50%), based on comparison to the 2007 FBC as adopted October 31, 2007 (without the 2009 supplement).

Evaluate each ECM using adopted cost effectiveness indicators (PVBC, IRR, LCCE), within their specific package of ECMs. PVBC will be considered the primary measure with IRR and LCEE used as measures for illustration and communication of individual ECMs and packages of ECMs comparative economic viability.

Validation of the cost effectiveness of Florida Energy Efficiency Code for Building Construction changes shall mean that a number of ECM packages evaluated to comply with the statutory percent energy efficiency increase requirements have a greater benefit than cost as measured in present value dollars.

1.C. DEFINITION OF "CONSUMER" (APPLIES TO BOTH RESIDENTIAL AND COMMERCIAL)

Consumer: A class of economic system participant that makes no distinction between the owner of the building and the utility rate payer.

All of the above recommendations have been adopted by the Commission.

3. ENERGY CONSERVATION MEASURES FOR REPLACEMENT OF AIR CONDITIONING EQUIPMENT RECOMMENDATIONS

Consensus Recommendations:

Sizing of Replacement Air Conditioning Systems:

The A/C contractor or licensed Florida PE shall submit a nationally recognized method based sizing calculation at time of permit application for total replacement of the condensing /evaporator components of HVAC systems 65,000 Btu/h and less.

Exception: Buildings designed in accordance with Section 105.3.1.2 of the Florida Building Code, Building.

Testing of air distribution systems when air conditioning systems are replaced:

At the time of the total replacement of HVAC evaporators & condensing units, under 65,000 Btu/h, all accessible (a minimum of 30 inches clearance) joints and seams in the air distribution system shall be sealed using reinforced mastic or code approved equivalent and shall include a signed certification by the contractor that is attached to the air handler unit stipulating that this work had been accomplished.

Exception:

1. Ducts in conditioned space.

2. Joints or seams that are already sealed with fabric and mastic.

3. If system is tested and repaired as necessary.

2. DEVELOP A STRATEGIC PLAN FOR INCREASED EFFICIENCY REQUIREMENTS REQUIRED BY LAW FOR FUTURE FBC EDITIONS

Consensus Recommendations:

Strategic Plan Criteria

1. The Strategic Plan must implement s.553.9061(1), F.S., scheduled increases in the Code's energy performance standard.
2. The Strategic plan must consider cost effectiveness of the incremental changes in efficiency required by the Code.
3. The Strategic Plan must implement s.553.73(6)(a), F.S., selection of the IECC as a foundation code and its modification to maintain the efficiencies of the Florida Energy Efficiency Code for Building Construction, s.553.901, F.S..
4. The Strategic Plan must implement s.553.9061(2), F.S., requiring the Code to recognize including energy efficiency performance options and elements including but not limited to: Solar water heating; Energy efficient appliances; Energy efficient windows, doors and skylights; Low solar absorption roofs/cool roofs; Enhanced ceiling and wall insulation; Reduced leak duct systems; Programmable thermostats; and Energy efficient lighting systems.
5. The Strategic Plan should identify compliance methods with the best potential for complying with the schedule for increasing efficiency standards.
6. The Strategic Plan should be adaptable for all potential mandated efficiency performance standard increase schedule.
7. The Strategic Plan should allow flexibility for builders to choose different ways to adapt their construction.
8. The Strategic Plan should provide flexibility appropriate to product innovation.
9. The Strategic Plan should provide for easy measurement and demonstration of compliance with the energy efficiency increases required by s.553.9061, F.S..
10. The Strategic Plan should require that compliance meets an equivalent energy standard regardless of the compliance method.

Strategic Plan Consensus Recommendation

Commission Select The IECC As Foundation Code For Florida Building Code, Energy Pursuant To S.553.73(6)(A), F.S.

Commission Adopt The Florida Energy Efficiency Code For Building Construction (FEC) Within The Florida Building Code Pursuant To S.553.901, F.S. By --

Modifying The IECC To Maintain The Efficiencies Of The FEC Adopted And Amended Pursuant To S.553.901, F.S. As Directed By S.553.73(6)(A), F.S.

Modifications To Include:

- Adding A Maximum Glass Percent Criteria To The Prescriptive Compliance Method To Maintain A Consistent Standard Of Energy Efficiency For All Compliance Methods. (Criteria 10, S.553.73(6)(A)), And S.553.901, F.S.)

- Modifying The Prescriptive Compliance Method's Component Efficiency Requirements To Meet The 20% Overall Efficiency Requirement Improvement Pursuant To S.553.9061(1), F.S., As Determined By Simulations Of Annual Energy Use By Energy Gauge USA Fla/Res. (Criteria 10 And S.553.73(6)(A))

- Modifying The UA Compliance Method's Compliance Criteria To Meet The 20% Overall Efficiency Requirement Improvement Pursuant To S.553.9061(1), F.S., As Determined By Simulations Of Annual Energy Use By Energy Gauge USA Fla/Res. (Criteria 10 And S.553.73(6)(A))

- Using The Energy Gauge USA Fla/Res Implementation Of The FEC Energy Budget Compliance Method For The Performance Compliance Method And Using 80 Points As The Compliance Criteria (S.553.73(6)(A), F.S., S.553.901, F.S., Criteria 4, 5, 6, 7, 8, 9, 10, 11 And 12)

- Modifying The IECC To Include All Other Energy Efficiency Requirements Adopted Pursuant To S.553.901, F.S. The "Thermal Efficiency Code".

REMAINING WORKGROUP TASKS

4. SPECIFIC BUILDING OPTIONS TO ACHIEVE ENERGY EFFICIENCY IMPROVEMENTS

Section 553.9061 (2) The Florida Building Commission shall identify within code support and compliance documentation the specific building options and elements available to meet the energy performance goals established in subsection (1). Energy-efficiency performance options and elements include, but are not limited to: (a) Solar water heating. (b) Energy-efficient appliances. (c) Energy-efficient windows, doors, and skylights. (d) Low solar-absorption roofs, also known as "cool roofs." (e) Enhanced ceiling and wall insulation. (f) Reduced-leak duct systems. (g) Programmable thermostats. (h) Energy-efficient lighting systems.

Issues for Evaluation:

- Solar water heating.
- Energy-efficient appliances.
- Energy-efficient windows, doors, and skylights.
- Low solar-absorption roofs, also known as "cool roofs."
- Enhanced ceiling and wall insulation.
- Reduced-leak duct systems.
- Programmable thermostats.
- Energy-efficient lighting systems.
- Water source, geo-thermal HVAC systems.
- Solar photovoltaic systems.
- variable refrigerant flow mechanical systems.
- Data center efficiencies.
- Under-floor duct systems.
- Induction lighting and new lighting technologies.
- Passive energy efficient design and day-lighting.
- Building envelop efficiencies.

5. OPTIONS FOR ADDRESSING HUMIDITY AND MOISTURE CONTROL PROBLEMS FOR HOT AND HUMID CLIMATES

Issues for Evaluation:

- *Minimum efficiency equipment can result in problems with indoor humidity control for situations where AC equipment is oversized and sensible heat loads are diminished by advanced ECMs relative to latent loads contributed by outdoor moisture infiltration/diffusion and indoor moisture generation.*
- *Energy conservation achieved by sensible load reduction measures must be balanced with equipment requirements for improved moisture removal and latent loading control measures.*
- *High efficiency variable speed and variable capacity AC systems provide load matching capability and increase moisture removal effectiveness.*
- *Building envelope tightening to limit outdoor moisture infiltration/diffusion typically reduce air exchange resulting in building performance characteristics that may lead to required forced air ventilation of homes.*
- *Forced ventilation of homes will require preconditioning of ventilation air to remove moisture to achieve indoor humidity control.*

6. OPTIONS FOR DESIGN CRITERIA FOR ENERGY EFFICIENT POOLS

The Energy Act of 2008 (HB 7135) directs adoption of pool pump efficiencies in the 2010 FBC. During discussions with the Florida Spa and Pool Association regarding energy efficiency requirements for pool pumps members suggested improved efficiency could be achieved through criteria for pool hydronic system design.

This task will be evaluated by: Pool Efficiency Subcommittee to the Energy Code Workgroup.

Issues for Evaluation:

- *Pool pump standards.*
- *Pool plumbing system design.*
- *Performance and prescriptive compliance paths for pools.*
- *Credits for alternative energy sources for pool heating, lighting and pumping.*

7. EVALUATE REQUIREMENTS FOR GREEN ROOFS RECOGNITION IN FLORIDA BUILDING CODE

This task will be evaluated by: Green and Energy Efficient Roofs Subcommittee to the Florida Energy Code Workgroup.

Issues for Evaluation:

- *Green roof energy performance, structural and water protection characteristics in Florida environment.*
- *Cool roof options and energy performance in Florida environment.*
- *Alternative roof systems and components effect on roof/ceiling heating cooling loads and calculations for Florida environment (solar pool heater and DHW thermal arrays, pv arrays, pv roof tiles, mass and metal roof covering, evaporatively cooled, radiant barrier systems).*

ENERGY CODE TASKS FROM COMMISSION WORKPLAN

(Updates by Commission October 13, 2009)

The 2008 Legislature established several directions for development of the Florida Energy Code provisions of the 2010 Florida Building Code. The broadest direction is the requirement for 20% increase in efficiency and the other tasks fall under it. Three additional not legislated energy code related tasks are on the work plan also. All tasks must be coordinated for determination of the requirements for the 2010 Code. Consequently, they are organized under the broad task.

Primary Task -

35. Study Energy Conservation Measures Code Compliance Methods and Develop a Plan for Increased Efficiency Requirements for Future FBC's (HB 697 and HB 7135)

Origination: *The 2008 Legislature directed the Commission to enact specific increase in building energy efficiency requirements in HB 697 (Building Code) and HB 7135 (Energy). This task initiates the study and development of a schedule of increasing requirements, the first of which are to be enacted in the 2010 FBC whose development begins in 2009.*

Sub-Tasks –

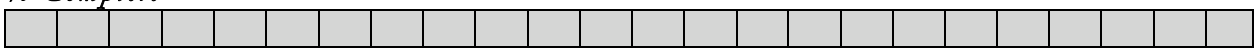
27. Develop Rule for Energy Code Cost Effectiveness Test (HB 687 and HB 7135)

Schedule for Sub-Task 27:

Appoint Work Group	12/9/08
Work Group/TAC meetings to develop recommendation	2/3/09
	3/5/09
	3/27/09
Rule Development Workshop	4/09
Rule Adoption Hearing	6/09
Notice of Change published	7/3/09
Rule Effective	9/1/09

Status: *Complete*

% Complete



100%

Origination: *The Commission was directed by the 2008 Florida Legislature in HB 697 and HB 7135 to develop a cost effectiveness test criteria by rule to be applied to justification for increased residential building energy efficiency requirements.*

39. Study Energy Conservation Measures for Replacement of Air Conditioning Equipment

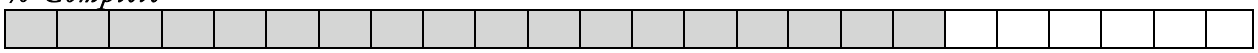
Origination: *Recommendation of the Energy TAC resulting from consideration of Energy Code amendment proposals regarding replacement air-conditioning systems at the October 2008 meeting. Approved by the Commission October 15,2008.*

Schedule:

Work Group/TAC considers options and develops consensus plan	3/27/09 4/30/09
Recommendation adopted	5/28/09
Proposals for 2010 FBC submitted for adoption	3/1/10
(See 2010 FBC development schedule)	

Status: *In progress*

% Complete



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48. Develop Strategic Plan for Energy Standards Revision Pursuant to s.553.9061, F.S.

Subtask 46

Schedule:

Workgroup appointed	12/9/08
Workgroup meetings	4/30/09
	5/28/09
	8/11/09
	9/3/09
Recommendation Adopted	10/14/10
	11/12/09
Recommendation to Commission	12/09

Status: *In Progress*

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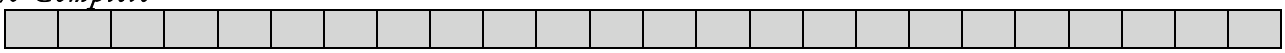

100%

Origination: *The 2008 Legislature directed the Commission to enact specific increases in building energy efficiency requirements in HB 697 (Building Code) and HB 7135 (Energy). This sub- task initiates the study and development of a schedule.*

47. Develop Recommendations for 20% Increased Energy Efficiency Requirement for 2010 FBC (HB 697 and HB 7135)

This task integrates the outputs of Task 35 and the Sub-tasks to develop a draft of Energy Code chapters for the 2010 FBC.

Schedule:

Workgroup appointed	**12/9/08**
Commission approves output of Task 27 and adopts requisite Rule	**6/9/09**
Workgroup adopts strategic plan for Commission approval	**10/12/09**
Contractor and Workgroup develop draft 2010 Energy chapters	**9/09 -12/09**
Residential Chapters	**11/12/09**
Commercial Chapters	**12/9/09**
Proposals for 2010 FBC submitted for adoption	**3/1/10**

Status: *Pending*

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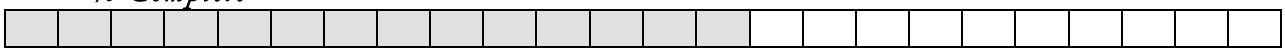

60%

Origination: *In addition to the directives indicated in Task 35 and sub-tasks, the 2008 Legislature amended the building code law to require the IECC be adopted as a foundation code to be amended not less stringent than the Florida Energy Efficiency Code for Building Construction. The building code law requires updating the Code every three years with the 2010 FBC the next edition.*

42. Identify Specific Building Options to Achieve the Energy Efficiency Improvements (list identified in HB 697 and HB 7135)

Schedule:

To be conducted as part of 2010 FEC recommendations development Task 47

Origination: *Energy act of 2008 (HB 7135) directs the Commission to include, as a minimum, certain technologies for achieving enhanced building efficiency targets established by the Act in the Florida Energy Code. The Building Code act of 2008 (HB 697) directs the Commission to facilitate and promote the use of certain renewable energy technologies.*

26. Investigate Humidity Control Problems for Hot and Humid Climates

Schedule: *In Progress*
To be conducted throughout the project

Origination: The original workgroup recommended not pursuing special ratings for AC equipment used in hot and humid climates and recommended addressing the concerns with matching equipment moisture removal capabilities to building latent and sensible heat loads through the Florida Energy Code. Potential moisture control problems will be a part of the consideration for how to achieve improved building energy efficiencies directed by law.

Status: for Sub-Tasks 42 & 26: *Pending*

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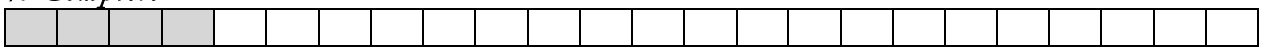

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29. Develop Criteria for Energy Efficient Pool and Spa Systems

Subtask 29
Schedule:

Pool Sub-workgroup appointed	4/8/09
Workgroup meetings	6/8/09
	8/12/09
	2/3/10
Proposals for 2010 FBC submitted for adoption	3/1/10
(See 2010 FBC development schedule)	

Status: *Pending*

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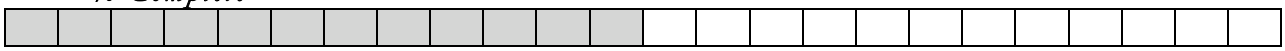

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Origination: *Energy act of 2008 (HB 7135) directs adoption of pool pump efficiencies in the 2010 FBC. During discussions with the Florida Spa and Pool Association regarding energy efficiency requirements for pool pumps members suggested improved efficiency could be achieved through criteria for pool hydronic system design.*

45. Evaluate Requirements for Green Roofs Recognition in Florida Building Code

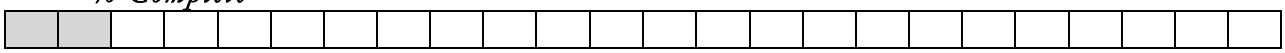
Subtask 45

Schedule:

Cool Roofs Workgroup appointed	4/8/09
Workgroup meeting	2/2/10
Proposals for 2010 FBC submitted for adoption	3/10
(See 2010 FBC development schedule)	

Status: *Pending*

% Complete



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Origination: *Energy act of 2008 (HB 7135) directs the Commission to include, as a minimum, certain technologies for achieving enhanced building efficiency targets established by the Act in the Florida Energy Code. Energy efficient roofs are one category. The Building Code act of 2008 (HB 697) directs the Commission to facilitate and promote the use of certain renewable energy technologies.*

The Roofing TAC requested a special committee to address green roofs at the December 2008 Commission meeting.

FLORIDA ENERGY CODE WORKGROUP PROCEDURAL GUIDELINES

PARTICIPANTS' ROLE

- ✓ The Workgroup process is an opportunity to explore possibilities. Offering or exploring an idea does not necessarily imply support for it.
- ✓ Listen to understand. Seek a shared understanding even if you don't agree.
- ✓ Be focused and concise—balance participation & minimize repetition. Share the airtime.
- ✓ Look to the facilitator(s) to be recognized. Please raise your hand to speak.
- ✓ Speak one person at a time. Please don't interrupt each other.
- ✓ Focus on issues, not personalities. Avoid stereotyping or personal attacks.
- ✓ To the extent possible, offer options to address other's concerns, as well as your own.
- ✓ Participate fully in discussions, and complete meeting assignments as requested.
- ✓ Serve as an accessible liaison, and represent and communicate with member's constituent group(s).

FACILITATORS' ROLE (FCRC Consensus Center @ FSU)

- ✓ Design and facilitate a participatory workgroup process.
- ✓ Assist the Workgroup to build consensus on a package of recommendations for delivery to the Florida Building Commission.
- ✓ Provide process design and procedural recommendations to staff and the Workgroup.
- ✓ Assist participants to stay focused and on task.
- ✓ Assure that participants follow ground rules.
- ✓ Prepare and post agenda packets, worksheets and meeting summary reports.

GUIDELINES FOR BRAINSTORMING

- ✓ Speak when recognized by the Facilitator(s).
- ✓ Offer one idea per person without explanation.
- ✓ No comments, criticism, or discussion of other's ideas.
- ✓ Listen respectively to other's ideas and opinions.
- ✓ Seek understanding and not agreement at this point in the discussion.

THE NAME STACKING PROCESS

- ✓ Determines the speaking order.
- ✓ Participant raises hand to speak. Facilitator(s) will call on participants in turn.
- ✓ Facilitator(s) may interrupt the stack (change the speaking order) in order to promote discussion on a specific issue or, to balance participation and allow those who have not spoken on an issue an opportunity to do so before others on the list who have already spoken on the issue.

ACCEPTABILITY RANKING SCALE

During the meetings, members will be asked to develop and rank options, and following discussions and refinements, may be asked to do additional rankings of the options if requested by members and staff. Please be prepared to offer specific refinements or changes to address your reservations. The following scale will be utilized for the ranking exercises:

Acceptability Ranking Scale	*4 = **acceptable,** I agree*	*3 = **acceptable,** I agree with **minor reservations***	*2 = **not acceptable, I** don't agree unless **major reservations** addressed*	*1 = **not acceptable***

WORKGROUP'S CONSENSUS PROCESS

The Workgroup will seek to develop a package of consensus-based recommendations for submittal to the Florida Building Commission. General consensus is a participatory process whereby, on matters of substance, the members strive for agreements which all of the members can accept, support, live with or agree not to oppose. *In instances where, after vigorously exploring possible ways to enhance the members' support for the final decision on a recommendation, and the Workgroup finds that 100% acceptance or support is not achievable, final decisions will require at least 75% favorable vote of all members present and voting.* This super majority decision rule underscores the importance of actively developing consensus throughout the process on substantive issues with the participation of all members and which all can live with. In instances where the Workgroup finds that even 75% acceptance or support is not achievable, publication of recommendations will include documentation of the differences and the options that were considered for which there is more than 50% support from the Workgroup.

The Workgroup will develop its recommendations using consensus-building techniques with the assistance of the facilitator. Techniques such as brainstorming, ranking and prioritizing approaches will be utilized. Where differences exist that prevent the Workgroup from reaching a final consensus decision (i.e. with support of at least 75% of the members) on a recommendation, the Workgroup will outline the differences in its documentation.

The Workgroup's consensus process will be conducted as an open process consistent with applicable law. Workgroup members, staff, other commissioners, and facilitator will be the only participants seated at the table. Only Workgroup members may participate in discussions and vote on proposals and recommendations. The facilitator, or a Workgroup member through the facilitator, may request specific clarification from a member of the public in order to assist the Workgroup in understanding an issue. Observers/members of the public are welcome to speak during the public comment period provided at each meeting, and all comments submitted on the public comment forms provided in the agenda packets will be included in the facilitator' summary reports.

Facilitator will work with staff and Workgroup members to design agendas and worksheets that will be both efficient and effective. The staff will help the Workgroup with information and meeting logistics.

To enhance the possibility of constructive discussions as members educate themselves on the issues and engage in consensus-building, members agree to refrain from public statements that may prejudge the outcome of the Workgroup's consensus process. In discussing the Workgroup process with the media, members agree to be careful to present only their own views and not the views or statements of other participants. In addition, in order to provide balance to the Workgroup process, members agree to represent and consult with their stakeholder interest groups.

PUBLIC COMMENT FORM

The Florida Building Commission and the 2010 Florida Energy Code Workgroup encourage written comments—All written comments will be included in the meeting summary report.

Name: _____

Organization: _____

Meeting Date: _____

Please make your comment(s) as specific as possible, and offer suggestions to address your concerns.

Please limit comment(s) to topics within the scope of the Workgroup, and refrain from any personal attacks or derogatory language.

The facilitator may, at his discretion, limit public comment to a maximum of three-minutes (3) per person, depending on the number of individuals wishing to speak.

COMMENT: _____

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Please give completed form(s) to the Facilitator for inclusion in the meeting summary report.