



Date: March 14, 2014

**Report for the period thru March 15, 2014
to
Department Business and Professional Regulations
Office of Codes and Standards**

Grantee Name:	University of Central Florida/Florida Solar Energy Center		
Grantee Address:	1679 Clearlake Road, Cocoa, FL 32922		
Grantee's Grant Manager:	Muthusamy V. Swami	Telephone No:	321-638-1410
Other Personnel	Rob Vieira & Bereket Nigusse		
Reporting Period:	Thru March 15, 2014		
Project Number and Title:	Development of the Compliance Software Tool Assistance Manual for the 2014 Florida Building Energy Code		

Provide a summary of Project accomplishments to date. (Include comparison of actual accomplishments to the objectives established for the period. If goals were not met provide reasons why

Task Updates

Task# 1. Review existing Technical Assistance Manual

The current technical assistance manual was reviewed to extract sections that are still applicable. A detailed outline of the commercial building section of the manual was created with additional relevant sections. Reviewed the current assistance manual, extracted section that are relevant and assembled them in the draft manual. Drafted new section write-up for the six proposed design prototype buildings assumptions and inputs. The prototype design building inputs detailed description includes: geometry of the buildings, constructions of the building envelope assemblies, HVAC systems types, interior lighting, and electric equipment.

Task #2. Update general software requirements.

No activity

Task #3. Update residential energy compliance procedure.

No Activity



Task #4. Update commercial energy compliance procedure.

The COMNET manual was thoroughly reviewed. The commercial energy compliance procedure is being modeled along similar lines to COMNET. The prototypes used in COMNET that apply to APPENDIX G of ASHRAE are being modified appropriately for applicability with ASHRAE and IECC code compliance portions. One compliance prototype has fully evaluated and results table that software will be required to match has been completed. Other prototypes are being currently evaluated. Identified prototype building test suite for commercial buildings and populated assumptions required to define the proposed design building inputs. Six buildings were identified as test suite for compliance software evaluation. Extracted the reference building requirements from ASHRAE Standard 90.1-2010 and IECC-2012 Standard for climate zones 1 and 2. A Microsoft EXCEL spreadsheet file has been designed for side-by-side comparison of the reference building requirements and compliance software results. A sample snapshot of the spreadsheet design for one of the prototype buildings is shown in Figure 1. Extraction of reference building requirements for the other prototype proposed buildings is continuing.

Appendix E - Modeling and Baseline Results_Rev1BAN - Microsoft Excel					
File Home Insert Page Layout Formulas Data Review View Developer Team					
B2					
A	B	C	D	E	F
1					
2	Output Results for Florida Commercial Code Compliance Baseline Model Qualitative Tests using Prototype A1				
3					
4				Test Run 1 (Climate Zone 1)	
5			Reference Results for Baseline model (ASHRAE)	Compliance Software Baseling Model Results (ASHRAE)	Reference Results for Baseline model (IECC)
6	Envelope Components				
7	Exterior Wall (Above-grade), Assembly U-value		0.089		0.077
8	Exterior Wall Insulation, R-Value		R-13		R-13 + R-5 ci
9	Exterior Wall Thermal Capacity, (Btu/ft ² ·°F)		3.27		NA
10	Exterior Wall Solar Reflectance		NA		NR
11	Exterior Wall Solar Absorptance		NA		0.75
12	Exterior Wall Emittance		NA		0.90
13	Floor Slab-on-grade, Unheated, Fc-factor		0.73		0.73
14	Floor Insulation		NR		NR
15	Floor Thermal Capacity, (Btu/ft ² ·°F)		9.34		NA
16	Roof Assembly U-value		0.034		0.048
17	Roof Insulation, R-Value		R-30		R-20 ci
18	Roof Thermal Capacity, (Btu/ft ² ·°F)		1.53		NA
19	Roof Exterior Solar Reflectance		0.60 (As Proposed)		NA
20	Roof Exterior Solar Absorptance		NR		0.75
21	Roof Exterior Emittance		0.90 (As Proposed)		0.90
22	Window Assembly U-value		1.20		0.50
23	Window Glass SHGC		0.25		0.25
24	Interior Lighting				
25	Lighting Power Density (W/sf) - Building Area Method		0.9		0.9
26					
27	Internal Loads				
28	Internal Equipment Power Density (W/sf)		1.0		1.0
29					
30	HVAC System				
31	HVAC system type		Packaged VAV with Parallel Fan-Powered Boxes, Electric Resistance Heating		Packaged VAV with Parallel Fan-Powered Boxes, Electric Resistance Heating
32					
33	Perimeter Zone North - System Heating Efficiency		100% Et		100% Et

Figure 1 Reference building requirements for prototype building A1 for ASHRAE climate zone1

Deliverable Update:

Deliverable #1 Interim Report

Completed with this submission

Deliverable #2 Final Report

Due June 15, 2014

A. Provide an update on the estimated time for completion of the project and an explanation for any anticipated delays.

Progress is as scheduled

B. Provide any additional pertinent information including, when appropriate, analysis and explanation of cost overruns or high unit cost

No relevant information to report at this time

C. Identify below, and attach copies of, any relevant work products being submitted for the project for this reporting period (eg. report data sets, links to on-line photographs, etc.)

No relevant information to report at this time

D. Hours and budget update

Not available at this time

This report is submitted in accordance with the reporting requirements of Work Authorization for \$70,000 dated Feb 14, 2014.



Signature of the Grantee's Grant Manager
Muthusamy V. Swami, Ph.D

March 14, 2014

Date