Florida Building Code Changes Cost Impact Workshop

Center for Advanced Construction Information Modeling
M. E. Rinker, Sr., School of Construction Management
University of Florida
Box 115703
Gainesville, FL 32611-5703
www.bcn.ufl.edu/cacim

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Workshop Description

The cost impact evaluation reports produced by the University of Florida Center for Advanced Construction Information Modeling (CACIM) have proven to be a reliable resource for making data-driven decisions related to Building Code Changes in the state of Florida. However, practitioners and decision-makers have no way to test scenarios and use the datasets created by CACIM outside of the annual report. To this end, a workshop will be developed which will provide instruction on how to use the BIM-enabled cost estimation environment to assess cost impact scenarios. Figure 1 shows the general process for developing this workshop.

Work completed on the development of the workshop at this point includes review of the code changes and development of the cost estimate spreadsheet. Figure 1 highlights recording tasks that have been completed.

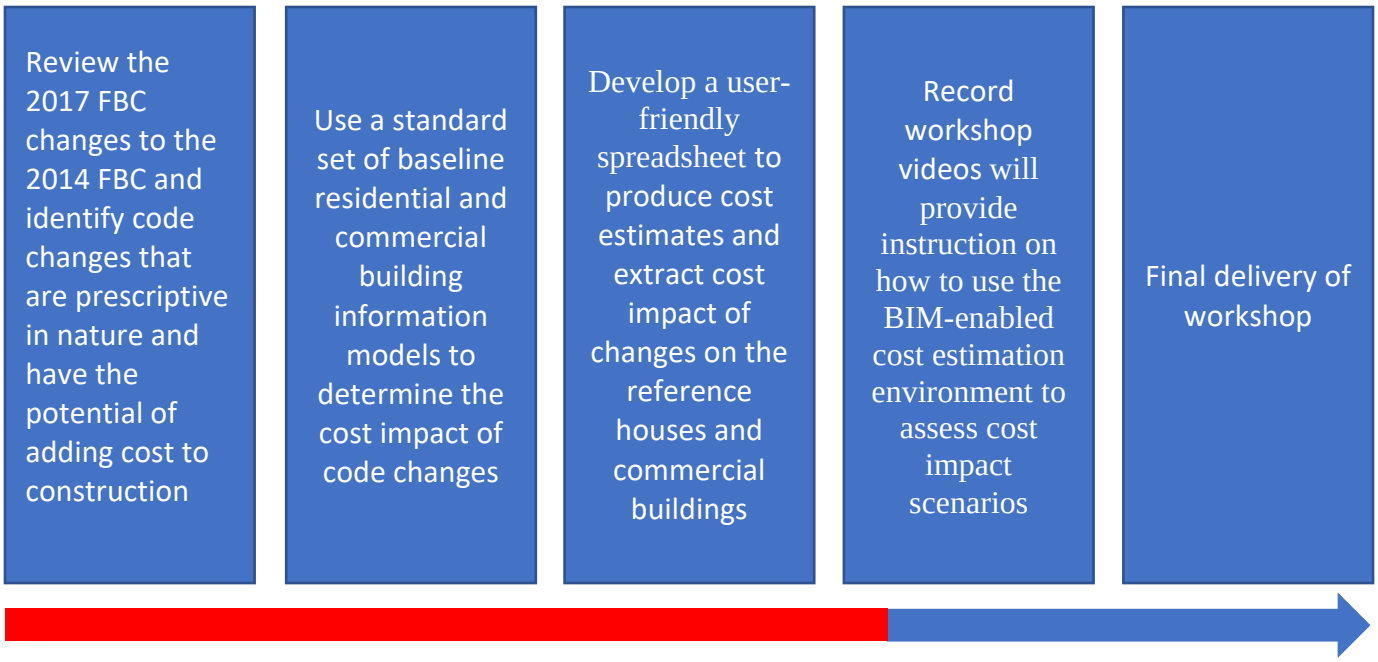

Figure 3. Workshop Development Plan

Audience Profile

The workshop is intended for practitioners and policy decision makers who have a desire to evaluate the potential cost impact of building code changes proposed at the national and state level and assess the cost implications of a multitude of scenarios for the Florida Building Code.

Workshop Duration

The estimated length of the workshop is 2 hours (Subject to change upon complete recording of the workshop).

Workshop Objectives

After completing the workshop, participants will be able to:

1. Review and analyze the Florida's specific changes to the 2015 I–Codes to identify those code changes/provisions that are prescriptive in nature and have the potential of adding cost to construction.
2. Use a standard set of baseline residential and commercial building designs for use to evaluate the I-Codes to estimate the potential cost of Florida's specific changes.
3. Use the information in (1) and (2) and cost databases to produce cost estimates and extract cost impact of changes on the reference houses and commercial buildings.

Project Workflow

To achieve the objectives of the project, a user-friendly spreadsheet will be developed, and a workshop will be provided and recorded which outlines how to use the spreadsheet. This workshop will enable practitioners and policy decision-makers to assess the cost implications of a multitude of scenarios for the Florida Building Code. The workshop will be broken down into three sections: Project Review, Data Analysis, and Modified Data Input.

1. **Project Review**: This section will be subdivided to contain topics that explain the project objectives, analyze the seven building types selected as a representation of the major construction types in the state of Florida, as well as the BIM technology and software used to develop the building models. Lastly, the section will provide an overview of the RS Means software used to derive the cost data used in the spreadsheet.
2. **Data Analysis**: This section will provide a detailed overview of the developed cost estimate spreadsheet. Subsections will demonstrate how the model quantities are extracted from the building models and used to derive the assembly costs from RS Means, and how the model quantities and RS Means cost data are used to compute the total building cost of the buildings.
3. **Modified Data Input**: This section will be subdivided to contain topics that demonstrate how the developed cost estimate spreadsheet can be modified to reflect the building code changes, and also how the spreadsheet can be adapted to use historical cost data instead of the RS Means cost data. Lastly, the section will explain how the results can be used to assess the cost impact of the building code changes on the total construction cost

Figure 2 below shows a graphical representation of the project workflow.

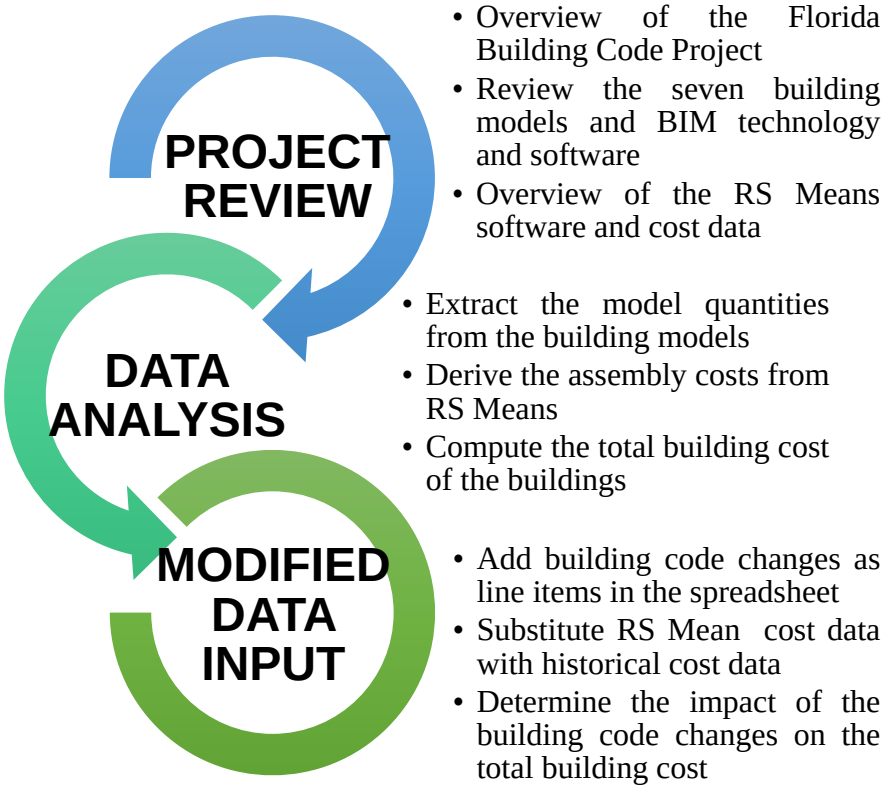

Figure 2: Process workflow of the building code changes cost impact workshop

Workshop Outline

INTRODUCTION
ESTIMATED DURATION: 4 MINUTES

1. **Welcome and Disclaimer**
    - This section welcomes the participants to the workshop.
    - Estimated Duration: 1:06 minutes.
2. **Workshop Description and Objectives**
    - This section and provides a brief introduction to the workshop and explains the course objectives and what the participants should expect out of this workshop.
    - Estimated Duration: 1:09 minutes.
3. **Workshop Workflow**
    - This section outlines the workflow of the workshop and gives a brief rundown of each segment, so that the participants can know what to expect from the workshop.
    - Estimated Duration: 1:27 minutes

PART 1: PROJECT REVIEW
ESTIMATED DURATION: 1 HOUR 5 MINUTES

1. **Florida Building Code Project**
    - This section talks briefly about building code changes over the years and future code changes. It also explains the purpose behind the code changes
    - Estimated Duration: 5 minutes.
2. **Florida Building Code Working Scenarios**
    - This section provides details on the seven building types selected to represent the types of major construction in the state of Florida and why they were selected. The section also explains the BIM-technology used in producing models of these seven building types.
    - Estimated Duration: 10 minutes.

    i. **Small Office Building**
        - This section provides information about the Small Office Building, and also shows a quick walkthrough of the building.
        - Estimated Duration: 4 minutes.

    ii. **Retail Building**
        - This section provides information about the Retail Building, and also shows a quick walkthrough of the building.
        - Estimated Duration: 4 minutes.

iii. **Elementary School Building**
- This section provides information about the Elementary School Building, and also shows a quick walkthrough of the building.
- Estimated Duration: 4 minutes.

iv. **Small Hotel Building**
- This section provides information about the Small Hotel Building, and also shows a quick walkthrough of the building.
- Estimated Duration: 4 minutes.

v. **Mid-Rise Apartment Building**
- This section provides information about the Mid-Rise Apartment Building, and also shows a quick walkthrough of the building.
- Estimated Duration: 4 minutes.

vi. **1-Story Residence Building**
- This section provides information about the 1-Story Residence Building, and also shows a quick walkthrough of the building.
- Estimated Duration: 4 minutes.

vii. **2-Story Residence Building**
- This section provides information about the 2-Story Residence Building, and also shows a quick walkthrough of the building.
- Estimated Duration: 4 minutes.

3. **Florida Building Code Prescriptive Code Changes**
- This section briefly explains the Florida specific changes to the 2015 I-Codes, which are prescriptive code changes explored in this workshop.
- Estimated Duration: 10 minutes.

4. **Cost Data Derivation**
- This section provides details on how cost data that reflects the prescriptive code changes is derived, either as cost implications from the code changes report or assembly costs from a cost database.
- Estimated Duration: 7 minutes.

i. **RS Means Online**
- This section provides information about the cost database of choice, RS Means Online, and the settings used to generate the costs. This section also provides an introduction to the interface of RS Means Online.
- Estimated Duration: 5 minutes.

PART 2: DATA ANALYSIS
ESTIMATED DURATION: 27 MINUTES

1. **Workshop Spreadsheet Template**

- This section provides an overview of the workshop spreadsheet template, highlighting the breakdown of line items, and briefly explains each tab of the spreadsheet.
- Estimated Duration: 10 minutes.

2. **Model Quantities**
    - This section shows how quantities are extracted from the produced models of each of the seven building types and how the quantities are inputted into the spreadsheet.
    - Estimated Duration: 7 minutes.
3. **RS Means Online Costs**
    - This section shows how assembly costs are derived from RS Means Online and how the costs are entered into the spreadsheet.
    - Estimated Duration: 5 minutes.
4. **Total Building Costs**
    - This section shows how the extracted model quantities and the cost derived from RS Means Online are computed to calculate the total building cost of each of the building types
    - Estimated Duration: 5 minutes.

PART 3: MODIFIED DATA INPUT
ESTIMATED DURATION: 25 MINUTES

1. **Florida Building Code Prescriptive Code Changes**
    - This section reviews the Florida Building Code prescriptive code changes and explains how to interpret the implications of these code changes. This section also shows how these changes can be added as new line items into the workshop spreadsheet.
    - Estimated Duration: 10 minutes.
2. **Customizing Cost Data**
    - This section shows how to customize cost data by substituting the RS Means cost data with historical cost data or cost data from any other cost database of the participants' choosing.
    - Estimated Duration: 10 minutes.
3. **Code Change Impact**
    - This section explains how to assess the impact of the code changes on the total building costs based on the participants' input.
    - Estimated Duration: 5 minutes.

PART 4: CONCLUSION
ESTIMATED DURATION: 10 MINUTES

1. **Review**
    - This section shows how to review at a glance the changes made to the spreadsheet in comparison to the original spreadsheet data.
    - Estimated Duration: 5 minutes.
2. **Summary**
    - This section demonstrates how to generate a summary report that reflects the impact of the code changes on the total building costs.
    - Estimated Duration: 5 minutes.

Recording Progress to Date

Work completed on the recording of the workshop at this point includes recording the introduction section of the workshop outline. Figure 3 highlights recording tasks that have been completed.

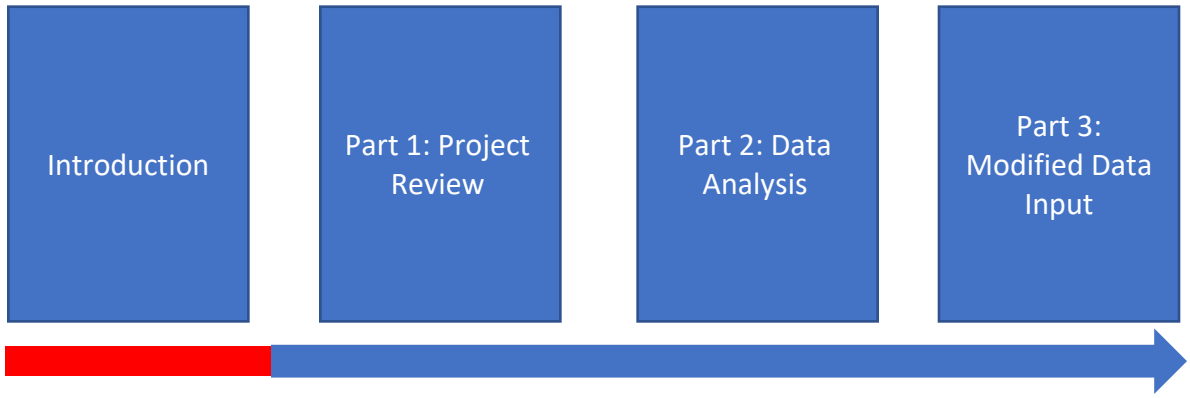

Figure 3. Workshop Recording Progress

Workshop Wrap-Up

For CACIM: Final summary, common themes or issues that come up during the development of the workshop, and next steps as we proceed.