

Florida Building Code Changes Cost Impact Workshop

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Final Report

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Executive Summary

The cost impact evaluation reports produced by the University of Florida's 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 webinar workshop was developed to provide instruction on how to use the BIM-enabled cost estimation environment to assess cost impact scenarios. Figure 1 shows the general process of developing this webinar workshop.

Two Webinar sessions of the workshop, 29 May 2018 and 31 May 31) were successfully presented to audiences of 16 and 7 persons respectively. Based on feedback from the audience the Webinar format should be a successfully completed by future participants. The recommendation is that future funding support be made available so that the Webinar website can be kept up and changes can be made to include the 2018 I-Codes data.

Workshop Description

The cost impact evaluation reports produced by the University of Florida's 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 webinar workshop was developed to provide instruction on how to use the BIM-enabled cost estimation environment to assess cost impact scenarios. Figure 1 shows the general process of developing this webinar workshop.

Work has been completed on the development of the workshop and the tasks accomplished are shown in Figure 1.

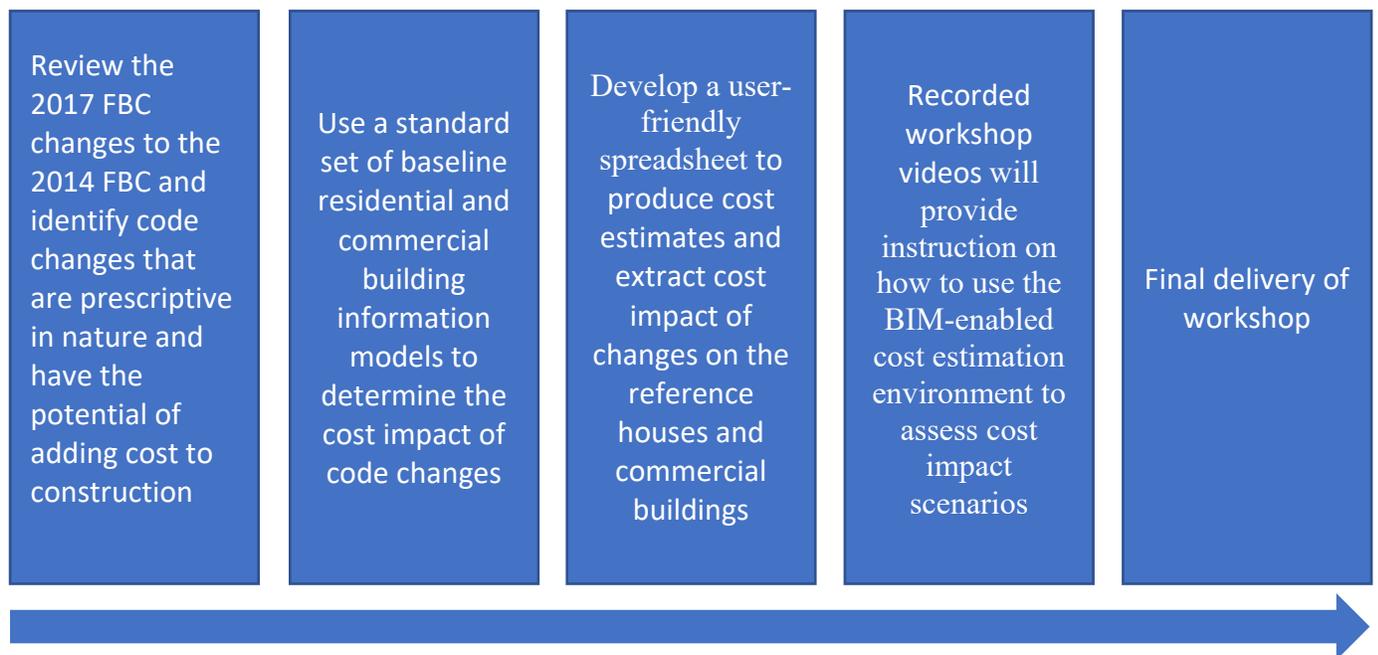


Figure 1. Workshop Development Plan

Audience Profile

The webinar 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 approximate length of the workshop is 1:30 hours.

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.

Workshop Workflow

To achieve the objectives of the project, a user-friendly spreadsheet was developed, and a webinar was recorded which outlines how to use the spreadsheet. The workshop will enable practitioners and policy decision-makers to assess the cost implications of a multitude of scenarios for the Florida Building Code. Figure 2 shows the project workflow. The workshop consisted of Introduction, Model Walk-Throughs and three learning modules: 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

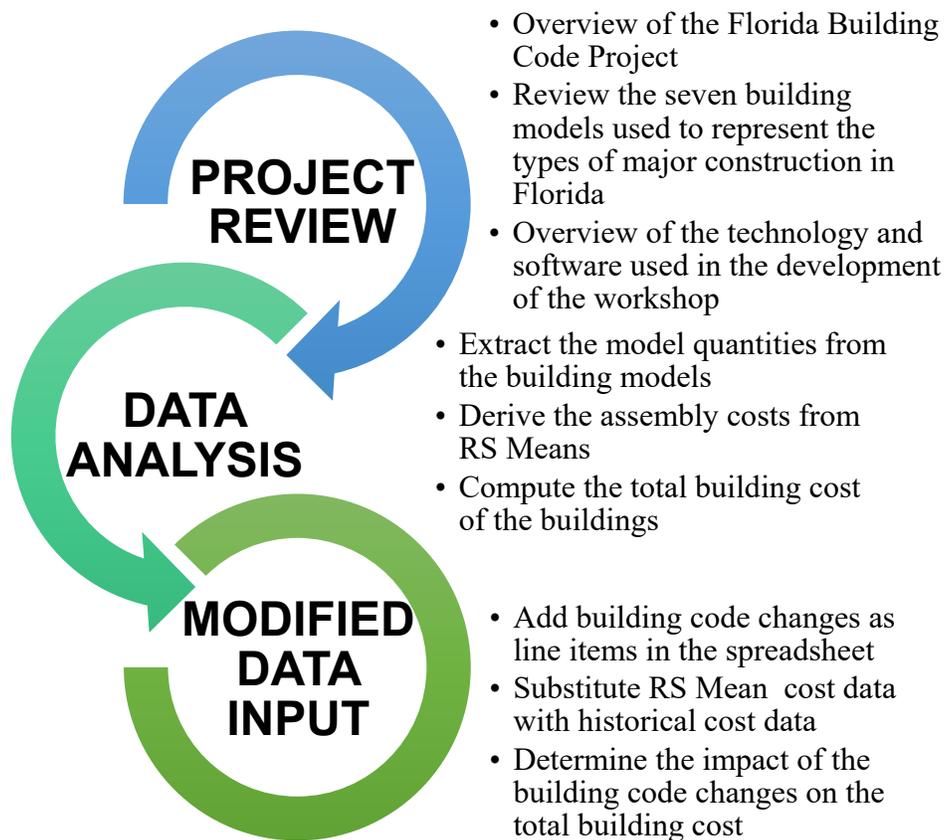


Figure 2: Process workflow of the building code changes cost impact workshop

Workshop Outline

The workshop webinar can be accessed at:

The workshop components and their duration are as follows:

I. INTRODUCTION

APPROXIMATE DURATION: 4:18 MINUTES

1. Welcome and Outline [00:00:56]

- This section welcomes the participants to the workshop and outlines the content.

2. Disclaimer [00:01:22]

3. Workshop Description and Objectives [00:01:17]

- This section provides a brief introduction to the workshop and explains the course objectives and what the participants should expect out of this workshop.

4. Workshop Workflow [00:01:43]

- 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.

II. MODEL WALK-THROUGHS (OPTIONAL) **APPROXIMATE DURATION: 16:34 MINUTES**

1. 1-Story Residence Building

- a. Whole House [00:01:34]

2. 2-Story Residence Building

- a. Whole House [00:01:35]

3. Small Office Building

- a. Architectural [00:01:05]
- b. Structural [00:00:45]
- c. MEPF [00:00:30]

4. Standalone Retail Building

- a. Architectural [00:01:11]
- b. Structural [00:00:40]
- c. MEPF [00:01:00]

5. Primary School

- a. Architectural [00:01:28]
- b. Structural [00:00:45]
- c. MEPF [00:00:30]

6. Small Hotel

- a. Architectural [00:01:00]
- b. Structural [00:00:30]
- c. MEPF [00:00:31]

7. Mid-Rise (20-Story) Apartment Building

- a. Architectural [00:01:30]

- b. Structural [00:01:30]
- c. MEPF [00:00:30]

III. MODULE 1: PROJECT REVIEW

APPROXIMATE DURATION: 9:38 MINUTES

1. Florida Building Code Case Models [00:02:10]

- This section describes the seven building types selected to represent the types of major construction in the state of Florida and why they were selected.

2. Details on 7 Building Types [00:03:18]

- This section provides the details of the seven building types selected to represent the types of major construction in the state of Florida and why they were selected.

3. Software Implementation [00:01:34]

- This section gives a brief overview of the technology and software used in the development of the workshop.

4. BIM- Enabled Quantity Takeoff and Cost Estimation [00:02:36]

- This section provides brief information about the software used to generate the building quantities used for the baseline cost estimates. Also, this section reviews the cost database of choice, RS Means Online, and other sources of cost data.

IV. MODULE 2: DATA ANALYSIS

APPROXIMATE DURATION: 27:51 MINUTES

1. Workshop Spreadsheet Template [00:05:54]

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

2. Model Quantities [00:10:40]

- 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.

3. RS Means Online Costs [00:07:50]

- This section shows how assembly costs are derived from RS Means Online and how the costs are entered into the spreadsheet.

4. Total Building Costs [00:02:55]

- 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

5. Conclusion [00:00:32]

V. MODULE 3: MODIFIED DATA INPUT APPROXIMATE DURATION: 29:14 MINUTES

1. Florida Building Code Prescriptive Code Changes [00:01:42]

- 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.

2. Customizing Cost Data [00:02:51]

- 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.

3. Code Change Impact for Commercial Buildings [00:12:48]

- This section explains how to assess the impact of the code changes on the total building costs based on the participants' input.

4. Code Change Impact for Residential Buildings [00:05:54]

- This section explains how to assess the impact of the code changes on the total building costs based on the participants' input.

5. Impact of Code Change on Cost [00:05:32]

- This section explains how to assess the impact of the code changes on the total building costs based on the participants' input.

6. Conclusion [00:00:27]

VI. CONCLUSION

APPROXIMATE DURATION: 2:49 MINUTES

1. Review and Summary

- This section shows how to review at a glance the changes made to the spreadsheet in comparison to the baseline cost estimates. This section also demonstrates how to interpret the impact of the code changes on the total building costs.

Conclusions

Two Webinar sessions of the workshop, 29 May 2018 and 31 May 31) were successfully presented to audiences of 16 and 7 persons respectively. Based on feedback from the audience the Webinar format should be a successfully completed by future participants. The recommendation is that future funding support be made available so that the Webinar website can be kept up and changes can be made to include the 2018 I-Codes data.