

# **Economic Impact Analysis and Evaluation of Property Insurance Rate Impacts Resulting from Potential Changes to the Florida Building Code from the ICC Base Code Provisions**

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## **Interim Report**

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### **Submitted to**

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## Overview

The purpose of this report is to document the work done to date in preparing the economic impact report on the recent changes to the Florida Building Code (FBC) and their potential impacts on residential and commercial property insurance rates in the State of Florida.

Research was performed on the actual changes to the Florida Building Code codified under House Bill 1021 (HB 1021), which was passed May 5, 2017 and signed into law by Governor Rick Scott on June 23, 2017. In this report, the bill's changes relative to the FBC will be displayed in parentheses first by the bill number, followed by the FBC subsection amendment (HB 1021, FBC § X(X)). Under HB 1021, the 2017 Florida Building Code (2017 FBC) is to be used as the base Florida Building Code (FBC), with updates being readopted every three (3) years (HB 1021 Section 11, FBC § 11(7)(a)) based on recommendations of the Florida Building Commission (Commission). This changes the past precedent of the State adopting the newest International Code Council (ICC) edition released in that same time frame. Amendments meeting stated criteria could be made by the Commission annually as deemed necessary (HB 1021 Section 11, FBC § 553.73(9)(a)).

This creates a situation where Florida's Building Code could differ from the national standards of the latest ICC Building Code used by other states. Some important protections related to health, safety, and welfare standards were added to help protect the interests of Florida's citizens. Amendments to the FBC would be mandatory when needed to maintain funding and discounts from Federal Emergency Management Agency (FEMA), the National Flood Insurance Program (NFIP), and the U.S. Department of Housing and Urban Development (HUD) (HB 1021 Section 11, FBC § 553.73(7)(a)). Additionally, existing FBC standards related to the intrusion of water (flood protection) or wind resistance could not be reduced below the base standards of FBC 2017, but could be strengthened (HB 1021 Section 11, FBC § 553.73).



Figure 1: Research Plan

## Scope of Work

1. Literature Review: Research the impact that potential changes to the Florida Building Code would have on residential and commercial property insurance rates in the state of Florida for various technical changes including:
  - a. Reducing or increasing the model code provisions with respect to structural design to resist wind;
  - b. Reducing or increasing the model code provisions with respect to flood protection;
  - c. Reducing or increasing the model code provisions with respect to fire sprinkler protection and fire separation distance between buildings;
  - d. Changing from a 3-year update code cycle to a 4-year, 5-year or 6-year update cycle;
  - e. Adopting ISO-BCEGS electrical code;
  - f. Identifying the impact of electrical code adoption on property insurance damage and repair claims.
  
2. Use the REMI PI+ model to develop several economic simulations that estimate the economic impact of building code and insurance rate changes in Florida and its counties.
  - a. Develop a methodology and set of assumptions about cost estimates and insurance rate changes based on the best available data;
  - b. Group Florida's 67 counties into zones using the best available data (wind zones or flood risk zone);
  - c. Prepare a report that summarizes the estimated impacts at the state level and for the different zones. The economic impact indicators discussed will be employment, output (sales), personal income, and gross domestic product;
  - d. Provide information economic impact information by county in an Appendix.

## Progress to Date

Work completed on the project at this point includes contracting subcontractors, and background research and starting the analysis. Figure 2 highlights research tasks that have been completed or are in progress at the compilation of this interim report.

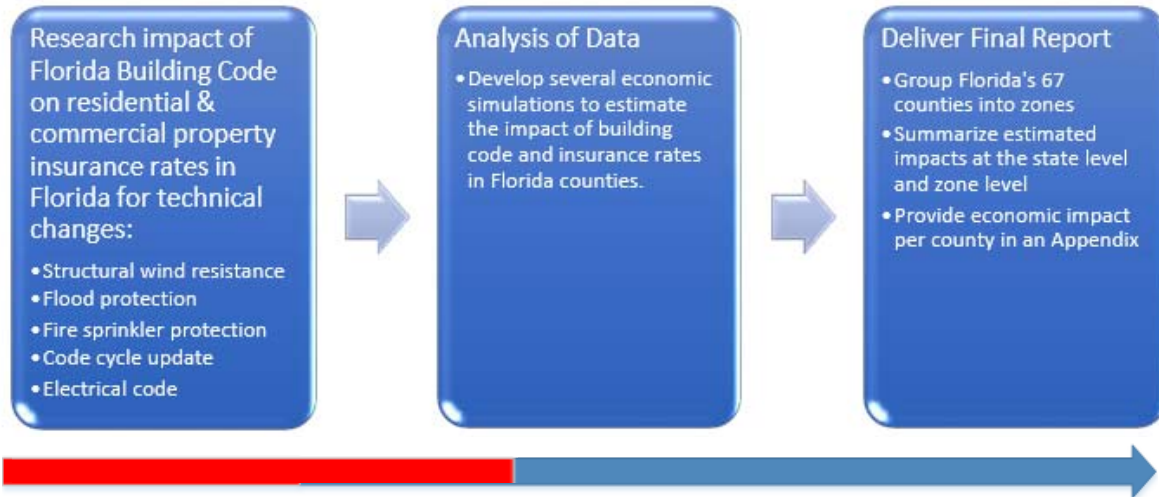


Figure 2: Research Progress to date

The screenshot shows the QUASRnx Home Page. At the top is the 'OFFICE OF INSURANCE REGULATION' logo with the tagline 'FAIR. FAST. PROFESSIONAL.' Below this are navigation links for 'OIR Home', 'I-PORTAL', and 'CONTACT US'. The main heading is 'QUASR next generation Quarterly and Supplemental Reporting System - Next Generation (QUASRng) Public Report Page'. A prominent orange-bordered box contains a disclaimer: 'PLEASE READ THE FOLLOWING DISCLAIMER PRIOR TO ACCESSING THE DATABASE'. The disclaimer text states that reports contain real-time data and may vary due to resubmissions, and that the system was created pursuant to Florida Statute 624.424. It also notes that data from State Farm Florida Insurance Company is not included as of the first quarter of 2014. Below the disclaimer, there are sections for 'Customized Reports With Step-by-Step Instructions' and 'Total Database Access'. The 'Customized Reports' section includes a dropdown menu for 'Select a Customized Report' and a brief description of the application's guidance. The 'Total Database Access' section includes a link to the 'Database Interface' and a note that minimal guidance is available for creating reports.

Figure 3: QUASRnx Home Page

# Value of Residential Properties in Florida

## Introduction

In order to examine the potential impacts of the changes to the FBC on residential and commercial property insurance premiums, it is necessary to have a base value for them in Florida for 2017. For the research questions being addressed in this study, both premium values for residential and non-residential (commercial) properties are required. It is also necessary to examine separately insurance premiums (“flood policies”) in the 100-year flood plain (1% floodplain). Such flood policies for residential and commercial properties are made available through and backed by FEMA and the NFIP. Data gathered regarding these premium totals discussed in this Introduction will be described below.

## Comprehensive Florida Residential Property Premiums

Data for residential premium values in Florida is available from the web site of the Florida Office of Insurance Regulation (OIR). A good source of data was found under the office’s data reporting site, the Quarterly and Supplemental Reporting System (QUASRng), found at the web link <https://apps.fldfs.com/QSRNG/Reports/ReportCriteriaWizard.aspx> (see Figure 2).

From the drop-down menu titled Select a Customized Report, residential insurance premiums can be brought up by quarter for a given year through QUARTRnx, the agency’s data search engine. As of the first quarter of 2014, State Farm Insurance data has not been included due to their filing being classified as trade secret data. It is therefore recommended that premium values for 2013 be used, so that State Farm data is captured. Either the mean or last quarter residential premium values could be used. Due to the comprehensive nature of the data provided, decisions would need to be made over many categories of premium values to be excluded. The inflation calculator discussed later in this report could be used to find the present value of these policies.

## Florida Residential Flood Policies

For data on flood policies, numbers found from the FEMA web site are recommended to be used.



Figure 4: BureauNet Home Page

Particularly, data from the NFIPs BureauNet web site, <https://bsa.nfipstat.fema.gov/> could be very useful for this project (Figure 3). By selecting the Reports link on the left side of the screen, the Policy Information by State report can be chosen. The report shows NFIP policies by state (Figure 5), or by clicking on the state's name highlighted in blue, policy premium totals at the county and municipal level can be provided (Figure 6).

**Policy Statistics**

in effect on report "AS OF" date below

Policy Statistics Country-Wide AS OF 12/31/2017			
State Name	Policies In-force	Insurance In-force whole \$	Written Premium in-force
Alaska	2,457	661,890,500	2,214,675
Alabama	55,138	12,843,786,400	36,821,042
Arkansas	16,677	3,036,720,300	13,641,433
Arizona	32,245	8,048,529,100	21,340,782
California	239,912	68,792,457,600	189,720,955
N Mariana Islands	9	630,300	23,155
Colorado	21,059	5,416,569,400	17,977,259
Connecticut	38,492	9,798,490,400	52,908,199
District Columbia	2,036	490,874,500	1,445,625
Delaware	26,763	7,026,942,200	19,576,740
Florida	1,759,229	434,492,887,000	960,007,933
Georgia	88,806	23,346,259,100	67,853,678
Guam	197	39,986,900	376,518
Hawaii	60,630	13,886,316,000	40,177,135
Iowa	12,776	2,621,889,000	13,045,671
Idaho	7,941	2,082,394,700	5,397,424
Illinois	41,012	8,041,093,800	42,178,568
Indiana	22,921	4,534,754,400	22,055,802
Kansas	9,673	1,887,262,200	8,089,222
Kentucky	21,016	3,596,422,400	19,583,708
Louisiana	498,276	128,696,302,200	356,998,464
Massachusetts	63,420	16,217,539,500	78,205,857
Maryland	66,837	15,917,702,100	39,096,134
Maine	8,395	2,007,477,900	8,883,263
Michigan	20,730	3,882,382,700	20,490,673
Minnesota	9,189	2,209,893,300	8,070,157
Missouri	21,318	4,138,331,600	21,475,250
Mississippi	64,372	15,691,187,600	43,036,006

Figure 5: NFIP Premiums by State

Policy Statistics Florida AS OF 12/31/2017					
County Name	Community Name	Policies In-force	Insurance In-force whole \$	Written Premium In-force	
		8	1,465,500		2,310
ALACHUA COUNTY	ALACHUA COUNTY*	1,455	386,882,900		895,260
	ALACHUA, CITY OF	115	30,985,800		83,400
	ARCHER, CITY OF	6	1,231,200		3,049
	GAINESVILLE, CITY OF	1,246	286,704,900		757,060
	HANTHORNE, CITY OF	6	1,211,300		4,013
	HIGH SPRINGS, CITY OF	31	7,388,600		14,694
	LA CROSSE, TOWN OF	1	350,000		373
	MICANOPY, TOWN OF	10	2,497,000		6,585
	NEWBERRY, CITY OF	29	7,483,000		9,415
	WALDO, CITY OF	1	350,000		373
BAKER COUNTY	BAKER COUNTY *	143	26,803,700		92,482
	MACCLENNY,CITY OF	23	6,166,000		8,970
BAY COUNTY	BAY COUNTY*	14,394	3,538,574,800		6,170,760
	CALLAWAY, CITY OF	862	231,578,400		515,679
	CEDAR GROVE, TOWN OF	6	1,303,600		2,220
	LYNN HAVEN, CITY OF	1,847	557,275,800		1,086,525
	MEXICO BEACH, CITY OF	949	245,863,100		519,369
	PANAMA CITY BEACH, CITY OF	12,536	2,582,328,900		3,478,031
	PANAMA CITY, CITY OF	2,522	700,702,300		1,610,002
	PARKER, CITY OF	262	66,575,200		125,015
	SPRINGFIELD, CITY OF	197	42,884,300		125,432
BRADFORD COUNTY	BRADFORD COUNTY *	394	74,460,200		262,671
	HAMPTON, CITY OF	2	153,500		718
	LAWTEY, CITY OF	6	1,090,500		5,459
	STARKE, CITY OF	71	15,360,300		83,425
BREVARD COUNTY	BREVARD COUNTY *	22,693	6,383,475,300		9,436,567
	CAFE CANAVERAL PORT AUTHORITY	18	9,266,700		32,112
	CAFE CANAVERAL, CITY OF	3,225	608,161,900		945,591
	COCOA BEACH, CITY OF	6,503	1,322,314,600		2,415,884
	COCOA, CITY OF	459	112,517,700		184,119
	GRANT-VALKARIA, TOWN OF	327	98,784,600		190,555
	INDIALANTIC, TOWN OF	793	218,744,200		350,160
	INDIAN HARBOR BEACH, CITY OF	1,877	494,019,400		652,717

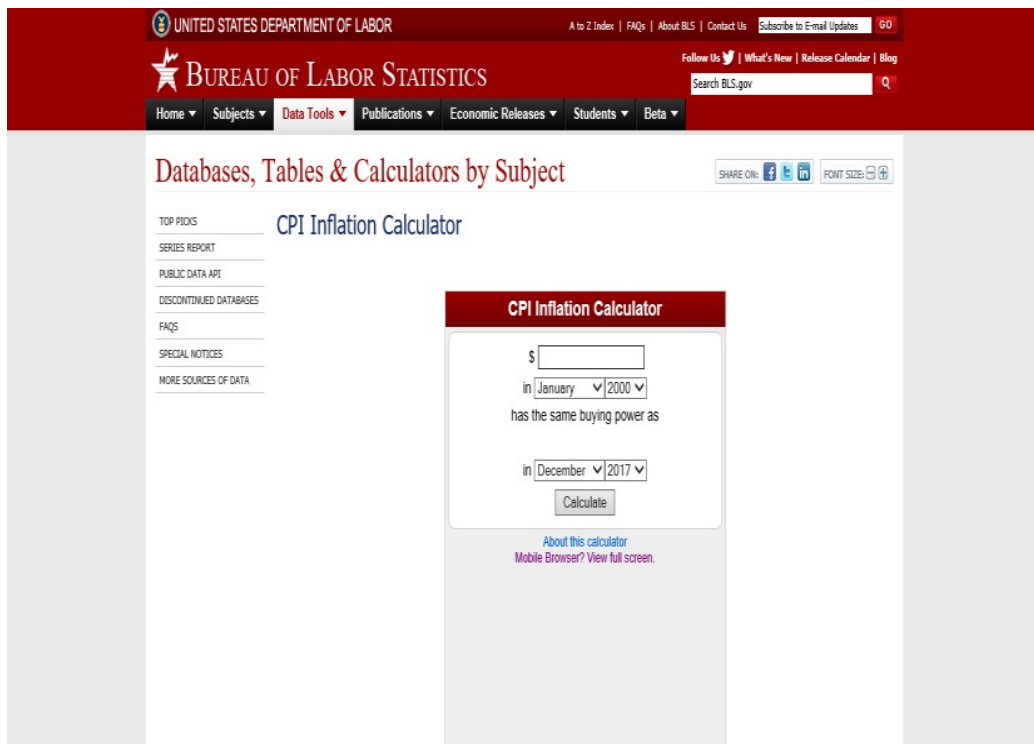
Figure 6: NFIP Premiums by County or City

The value of this data is that it will allow the value of floodplain premiums in 2017 to be looked at either at the macro (state) or micro (county/city) data levels, or a combination thereof as required by the research.



## Comprehensive Value of Commercial Building Premiums in Florida

In speaking with the OIR, it was stated that it does not keep records on insurance premiums for non-residential commercial structures. However, the web site of the National Association of Insurance Commissioners (NAIC) does provide this data under its annual reports titled Statistical Compilation of Annual Statement Information for Property/Casualty Insurance Companies. These reports are available through the web site: [http://www.naic.org/prod\\_serv\\_publications.htm](http://www.naic.org/prod_serv_publications.htm). The latest data for the total value of state premiums collected is for 2015. However, this data can be extrapolated using the inflation calculator from the Bureau of Labor Statistics found on the web at [https://www.bls.gov/data/inflation\\_calculator.htm](https://www.bls.gov/data/inflation_calculator.htm) (see Figure 7)



The image shows a screenshot of the Bureau of Labor Statistics website's CPI Inflation Calculator. The page has a red header with the BLS logo and navigation links. The main content area is titled "Databases, Tables & Calculators by Subject" and features a sidebar with various links. The central focus is the "CPI Inflation Calculator" form, which includes a text input field for a dollar amount, two dropdown menus for selecting months and years, and a "Calculate" button. Below the form, there are links for "About this calculator" and "Mobile Browser? View full screen."

Figure 7: Bureau of Labor Statistics Inflation Calculator

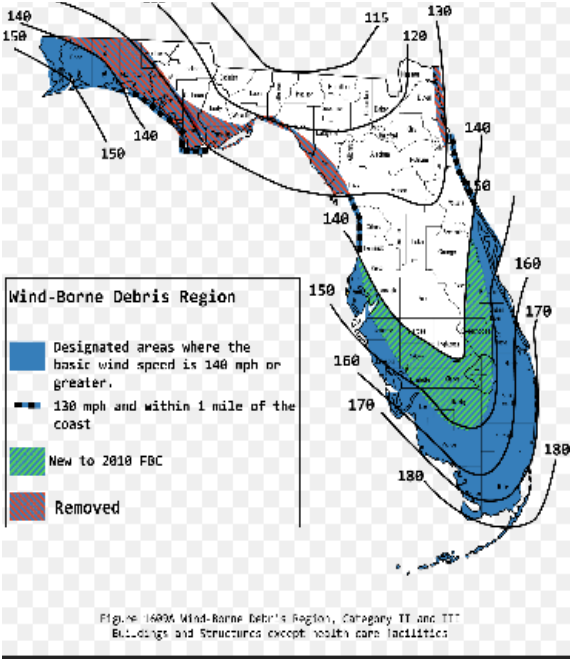
## Modeling Impacts of Building Code Changes on Insurance Premiums

As was mentioned under Limitations of Project in the Contract for Services, one difficulty of the project will be access to proprietary information used by insurance companies in establishing rates based on construction code standards. Not only is this information proprietary, but it is very esoteric knowledge for a researcher not as familiar with the field. Also, the development of a modeling system for a project like this would be cost-prohibitive. As a result, the OIR recommends the best way to examine the potential impacts of the changes to the FBC on

residential and commercial insurance premiums would be by contracting to have construction scenarios run through the Florida Public Hurricane Loss Model, developed through Florida International University (FIU) for OIR. Used by experts in diverse fields such as meteorology, wind/structural engineering, computer science, GIS, as well as actuarial and mathematicians, this model uses various hurricane models to look at construction and insurance impacts of the storms. More information on the Florida Public Hurricane Loss Model can be found on the web at <https://www4.cis.fiu.edu/hurricaneloss/>.

### Task 1.a. Reducing or Increasing the Model Code Provisions for Structural Wind Resistance

Figure 8: Florida Wind-Borne Debris Region Map



As mentioned earlier, HB 1021 restricts changes to the building code related to wind resistance so the standards cannot be decreased from those at the time of the bill’s adoption. The scenario applicable here would be examining the impact on residential and commercial property insurance premiums should ICC raised its code standards in other states, but the Florida code remain unchanged at its originally adopted standard. ICC changes to the wind load standards for garage and rolling doors is recommended as a good wind resistance standard to use for this research project. The 2017 Florida Wind-Borne Debris Region map (Figure 8) would be used in the calculations of the wind resistance code change’s impacts on these insurance premiums. Different scenarios would then be run through the Florida Public Hurricane Loss Model.

## Task 1.b. Reducing or Increasing Model Code Provisions for Flood Protection

As with Task 1.a. above, HB 1021 does not allow flood protection standards to be reduced below the level of the 2014 FBC. Additionally, the bill does not allow the standards below those that would jeopardize Florida's funding of federal flood insurance under the NFIP. Thus, the only scenario that would be applicable here would be the ICC Building Code's flood protection provisions being strengthened, but those of the NFIP and the FBC being left at their current standards. One potential code change scenario to examine would be the NFIP standard that areas below base flood elevation (BFE) have flood vents to help resistance of hydrostatic and hydrodynamic forces at a ratio of one (1) square inch of flood venting for every one (1) square foot of enclosed space. Different scenarios for venting standards could be run under various storm conditions utilizing the Florida Public Hurricane Loss Model.

## Task 1.c. Reducing or Increasing Model Code Provisions for Fire Sprinkler Protection and Fire Separation Protection Between Buildings

The code standards for fire sprinkler protection and fire separation between buildings will need to be further researched. Once these standards have been further researched, it can be determined how to best examine how changes in these regulations would impact residential and commercial insurance premiums.

## Task 1.d. Changing from a Three (3) Year Code Update to a Four (4) Year, Five (5) Year, or Six (6) Year Update Cycle

Through a review of the final adopted version of HB 1021 it has been determined that the traditional three (3) update cycle of the UCC Building Code has been maintained with the FBC. This issue of changing the update cycle appears to have been dropped during the legislative process, and is thus now a moot point.

## Task 1.e. Adopting the ISOB-BCEGS Building Code

Further research needs to be done on this issue.

## Task 1.f. Identifying the Impact of Electrical Code Adoption on Property Insurance Damage and Repair Claims

Further research needs to be conducted on this issue.