

# Building and Energy Codes

## In a Nutshell

The International Energy Conservation Code (IECC) is a standard that, when adopted into law, requires all building types undergoing construction and alteration to be built in such a way that they do not waste energy used for heating, cooling, and lighting. These construction practices also provide more comfortable, less drafty buildings that reduce energy use and energy bills.

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## The “How To”

Municipalities adopt the IECC into law by the same process that they would adopt any other building code, i.e., the IBC (International Building Code, which governs commercial construction) and the IRC (International Residential Code). Click [here](#) to learn more about how building codes are adopted.

Currently, St. Louis City has adopted the 2018 IECC, and St. Louis County has adopted the 2015 IECC. This [website](#) shows which energy codes have been adopted by cities and counties in Missouri. The entire state of Illinois currently enforces compliance with the 2018 IECC. In addition to the IECC, the City of St. Louis passed the [Building Energy Performance Standard](#) in 2020. St. Louis is the 4<sup>th</sup> jurisdiction in the country to put this standard into practice.

Copies of the IECC can be purchased at the [International Code Council](#).

## Planning & Zoning

Typically, the Department of Building and Safety for each municipality enforces the IECC. Since it is written by the ICC which writes all the other building codes, it is easy for building officials to understand and enforce. The Department of Energy has developed easy software tools to help builders and designers determine whether a project meets the IECC. These tools, [REScheck](#) and [COMcheck](#), are free to use. This software allows specific variables to be inputted for a project to see if it complies, making the job of building officials, plan checkers, and inspectors much easier.

St. Louis County may be able to review drawings for code compliance for municipalities in the county, making it easier for them to adopt the most recent IECC.

## Dollars & Cents

There should be little cost to a municipality or government entity that adopts IECC if they already have a structure in place for compliance.

Detailed return on investments for new residential projects built in our climate zone under the 2009 and 2012 IECC have been calculated by the U.S. Department of Energy. These models calculate only the increase in cost between specific materials that would be supplied whether the energy code was in place or not (i.e., R-13 versus R-20 fiberglass insulation). They have taken these specific material cost increases and calculated the

increase to a standard monthly mortgage payment (typically attained for new homes). The increase to the mortgage payment was compared to the monthly energy cost increase without these upgrades. Homeowners building new homes would break even at 13 months and start saving \$27 per month in energy costs from that point on.

The same cost saving analysis for new residential projects in the St. Louis metro area was also calculated by the Department of Energy. The break even point would be 14 months and a \$22 cost savings each month from there. Determining the cost savings for residential renovations is much more complicated and needs to be done on a case by case basis, since the scope of renovation can vary significantly. For example, kitchen remodels may actually increase energy consumption if appliances are added, going from a range to a cook top and double oven. However, adding insulation and weatherstripping to an existing house has a much quicker return on investment.

Predicting return on investment for commercial projects under the IECC is also much more difficult to calculate, since there are so many variables.

## Measuring Success

Adoption of the IECC will reduce energy use, thus creating a savings in energy bills for homeowners, while also providing a more comfortable and healthy building in which to live. This [website](#) outlines energy cost savings made by implementing the 2018 IECC, over the 2015 IECC.

## Discover More

The International Green Construction Code (IgCC) provides the design and construction industry with the most effective way to deliver sustainable, resilient, high performance buildings. This code is available for purchase, in addition to workbooks and interpretive manuals. The code itself, while lengthy, is fairly readable and explanatory with a lot of helpful information on how to best implement requirements. View more about the IgCC [here](#).

Missouri does not have a mandatory statewide energy code; however, all local jurisdictions except class III counties have the right to adopt an energy code. This [website](#) shows which energy building codes have been adopted by cities and counties in Missouri.

## Case Studies

### City of Clayton

#### Contact

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## **Description**

The codes on the City of Clayton's website are for reference only. The City encourages sustainable and green building design but doesn't require it. You can look up the codes online and get a brief description of them and what they are intended to achieve.

The City of Clayton, Missouri's Electrical Codes can be found under Section 500 (Building Codes and Building Regulations) within their [municipal code](#). The section reads:

“SECTION 500.030: ELECTRICAL CODE ADOPTION

A. The Saint Louis County Electrical Code as amended by the County of Saint Louis, Missouri, through date of the last amendatory ordinances, to wit: County Ordinance 24,439 approved on July 14, 2010, is hereby adopted as the Electrical Code of the City of Clayton, Missouri, as if fully set out herein, with the exception of the first (1st) paragraph of Section 80-17(C) regarding the penalty for violation.”

The St. Louis County Codes that the Clayton code refers to are in the [St. Louis County Code of Ordinances, Chapter 1102](#), which lays out the rules for everything from regulation to permitting. St. Louis County uses the National Electric Code.

The City of Clayton does include environmental goals on page 5 of their [Vision 2013](#) statement. Guiding principal #III states that, “Clayton resolves to be a leader in environmental initiatives. The goal is to incorporate sustainability in daily operations without increasing costs and to incentivize best practices, such as LEED certification and green roofs, by developers of new and existing buildings. We also recognize the importance of expanding the citywide recycling program to further reduce the amount of refuse transferred into local landfills”.

**Cost \$0**

## **Lessons Learned**

Obviously if the City required LEED certified buildings or provided more incentives for conservation, our support and desire for sustainable practices would be more effective, but for now, the City encourages green/sustainable construction and does not require it.

## **City of O'Fallon IECC**

### **Contact**

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### **Address**

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## **Description**

The City of O'Fallon City Council adopted the ICC building codes which includes the 2009 IECC on 2-10-11. The adopting ordinances from the city of O'Fallon's can be viewed on their web page in the Building and Permits page. There you will be able to view the adopting ordinance and the changes made to the code during adoption.

Any time the city gets an application for a new residential or commercial building inspectors are sent out to check for appliances.

**Cost \$0**

## **Lessons Learned**

Lessons learned from the implementation of the 2009 IECC include becoming more aware of the importance of energy conservation and the long term effects that structures have on energy usage. The codes are requiring better, more energy efficient buildings. There have not been any pros or cons other than educating the inspectors, as well as the contractors, on the requirements of the 2009 IECC. This is normal with any new code adoption.