2018 Building and Fire Code Adoption and Amendments

CITY OF FLAGSTAFF · ARIZONA · ESTABLISHED 1882

TEAM FLAGSTAFF
WE MAKE THE CITY BETTER

2018 Building and Fire Code Adoption and Amendments

City Council Meeting 1st Read

June 4, 2019

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Proposed Model Codes

Title 4: Building Regulations

2018 International Building Code (IBC)

2018 International Residential Code (IRC)

2018 International Existing Building Code (IEBC)

2018 International Mechanical Code (IMC)

2018 International Plumbing Code (IPC)

2018 International Fuel-Gas Code (IFGC)

2018 International Energy Conservation Code (IECC)

2018 International Solar Energy Provisions (ISEP)

2018 International Swimming Pool & Spa Code (ISPSC)

2017 NFPA 70 - National Electrical Code (NEC)

A117.1-2017 Standard for Accessible and Useable Buildings and Facilities

Title 5: Fire Code

2018 International Fire Code (IFC)

Adoption Timeline

3/2018 -11/2018: Analyze code changes and create draft amendments

7/2018 – 3/2019: Code update trainings for staff, design community, developers, public

11/2018 – 4/2019: Boards & Commissions meetings & public outreach

5/2019 – 6/2019: City Council adoption process

7/2019: 2018 Building and Fire Codes Adoption becomes effective

7/2019 – 12/2019: Accept submittals under both codes ("Grace Period")

1/2020: Full implementation of 2018 codes

Definition of “Substantial Structural Damage”.

A condition where any of the following apply:

- Condition 1
  - The vertical elements of the lateral force-resisting have suffered damage such that the lateral load-carrying capacity of any story in any horizontal direction has been reduced by more than 33 percent from its pre-damage condition.

Definition of “Substantial Structural Damage” continued.

- Condition 2
  - The capacity of any vertical component carrying gravity load, or any group of such components, that has a tributary area more than 30 percent of the total area of the structure’s floor(s) and roof(s) has been reduced by 20 percent from its pre-damage condition, and the remaining capacity of such affected elements, with respect to all dead and live loads, is less that 75 percent of that required by the International Building Code for new buildings of similar structure, purpose and location.

Definition of “Substantial Structural Damage” continued.

- Condition 3
  - The capacity of any structural component carrying snow load, or any group of such components, that supports more than 30 percent of the roof area of similar construction has been reduced more than 20 percent from its pre-damage condition, and the remaining capacity with respect to dead, live and snow loads in less than 75 percent of that required by the International Building Code for new buildings of similar structure, purpose and location.

Coconino County/City of Flagstaff Comparison

Commercial Costs for Energy Provisions

City Requirement	Cost	County Required?	Included in Model Code?
EV-Ready Parking	$2050 - $11,000	NO	Above Model
Solar-ready	$1000 +	NO	Above
	$3050 - $12,000+		

Residential Costs for Energy Provisions

Solar-ready	$150 - $300	YES	Above
Blower door testing	$300 – $500	NO	Model code
Duct testing	$200 - $250	NO	Model code
Circulation pump	$350 – $500	YES*	Model code
EV Charging	$300 – $500	NO	Above
	$1300 -$2050		

*County is currently requiring as 2012 IECC is adopted

Residential "Seismic" Savings

$11,950 - $2,050 =

$9,900

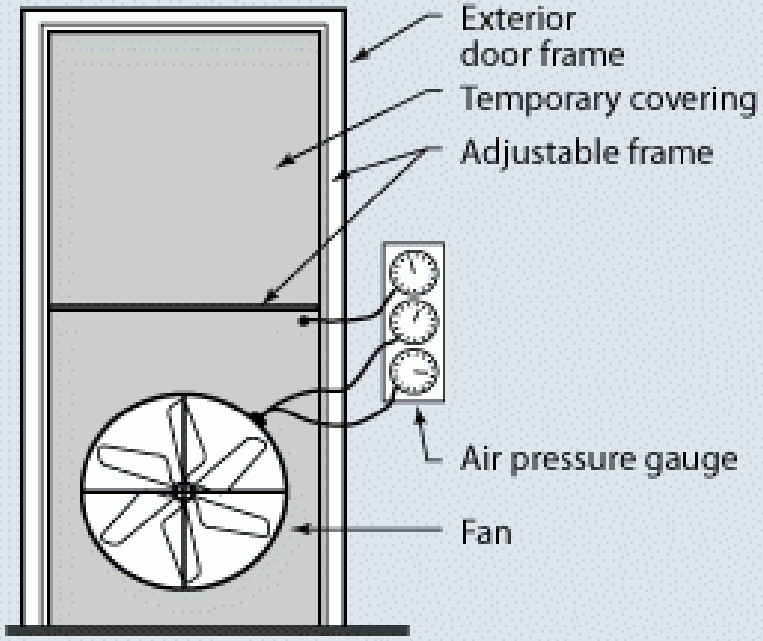
net savings

Blower Door Testing

Blower-door tests determine a home's airtightness. A blower door is a powerful fan that blows air into or out of a house, allowing a licensed professional to find air leaks in a home. These tests confirm the tightness of the house, and can detect issues that when remedied, can reduce energy use and save the homeowner money.

Diagnostic Tools

Testing the airtightness of a home using a special fan called a blower door can help to ensure that air sealing work is effective. Often, energy efficiency incentive programs, such as the DOE/ EPA ENERGY STAR Program, require a blower door test (usually performed in less than an hour) to confirm the tightness of the house.



Credit: United States Department of Energy

Benefits of Blower Door Testing

- A tight house, with reduced air leakage:
  - will have a reduced chance of mold and rot due to lower potential for moisture movement
  - will have a better performing ventilation system
  - will be more comfortable for the occupants, because the potential for drafts is reduced
  - could require smaller heating and cooling equipment capacities.
  - will produce cost savings due to lower heating bills, because the home is losing less heat through unintended openings. Air leakage can increase heating and cooling costs by over 30% (source).

Consumer Protection

- Without a blower door test, it is difficult to measure leakage or determine the air exchange rate in a home or building. This rate has a direct impact on efficiency, comfort and structure durability. The test can be used to identify and correct failures in the building envelope and air leakages. Simple testing can ensure the home is built to the standards it was designed for, and can identify simple fixes that will save the homeowner significantly over the life of the home.

History of Blower Doors in the Code

- **2006 IECC**: There were no provisions/requirements for verifying/testing the overall structure for air leakage (402.4).
- **2009 IECC**: The blower door test was introduced and existed as one of two air leakage verification options. (402.4.2.1) The other option is a visual inspection (402.4.2.2).
- **2012 IECC**: The blower door test became mandatory (402.4.1.2).
- **2015 IECC**: While the section test does not specifically list “blower door”, testing for overall building air leakage is required (402.4.1.2).
- **2018 IECC**: Air leakage testing remains required. The section language remains the same as 2015 edition except for the addition of addition referenced standards for test procedure compliance. Arizona cities including Phoenix and Tucson have adopted codes that require blower door testing, increasing the practice in the state.

Questions?