

WORK SESSION AGENDA

**CITY COUNCIL WORK SESSION
TUESDAY
MAY 14, 2019**

**COUNCIL CHAMBERS
211 WEST ASPEN AVENUE
6:00 P.M.**

1. Call to Order

NOTICE OF OPTION TO RECESS INTO EXECUTIVE SESSION

Pursuant to A.R.S. §38-431.02, notice is hereby given to the members of the City Council and to the general public that, at this work session, the City Council may vote to go into executive session, which will not be open to the public, for legal advice and discussion with the City's attorneys for legal advice on any item listed on the following agenda, pursuant to A.R.S. §38-431.03(A)(3).

2. Pledge of Allegiance and Mission Statement

MISSION STATEMENT

The mission of the City of Flagstaff is to protect and enhance the quality of life for all.

3. ROLL CALL

NOTE: One or more Councilmembers may be in attendance telephonically or by other technological means.

MAYOR EVANS
VICE MAYOR SHIMONI
COUNCILMEMBER ASLAN
COUNCILMEMBER MCCARTHY

COUNCILMEMBER ODEGAARD
COUNCILMEMBER SALAS
COUNCILMEMBER WHELAN

4. Public Participation

Public Participation enables the public to address the council about items that are not on the prepared agenda. Public Participation appears on the agenda twice, at the beginning and at the end of the work session. You may speak at one or the other, but not both. Anyone wishing to comment at the meeting is asked to fill out a speaker card and submit it to the recording clerk. When the item comes up on the agenda, your name will be called. You may address the Council up to three times throughout the meeting, including comments made during Public Participation. Please limit your remarks to three minutes per item to allow everyone to have an opportunity to speak. At the discretion of the Chair, ten or more persons present at the meeting and wishing to speak may appoint a representative who may have no more than fifteen minutes to speak.

5. Review of Draft Agenda for the May 21, 2019 City Council Meeting

Citizens wishing to speak on agenda items not specifically called out by the City Council may submit a speaker card for their items of interest to the recording clerk.

6. **2018 Building Code Adoption Update**
7. **2018 International Fire Code Adoption Update**
8. **Evaluation of ADA accessible parking options for the new City Court Facility location**
9. **Discussion:** Developing a policy to prioritize water uses in times of shortage, in the context of public investment, and for community planning
10. **Discussion:** Continue communicating with the Arizona Board of Regents and invite them to a meeting or send a letter with concerns about impacts on the City.
11. **Discussion/Direction:** Current Issues Before Arizona Legislature and Federal Issues.
12. **Public Participation**
13. **Informational Items To/From Mayor, Council, and City Manager; future agenda item requests**
14. **Adjournment**

CERTIFICATE OF POSTING OF NOTICE

The undersigned hereby certifies that a copy of the foregoing notice was duly posted at Flagstaff City Hall on _____, at _____ a.m./p.m. in accordance with the statement filed by the City Council with the City Clerk.

Dated this _____ day of _____, 2019.

Stacy Saltzburg, MMC, City Clerk

CITY OF FLAGSTAFF

STAFF SUMMARY REPORT

To: The Honorable Mayor and Council
From: Amy Palmer, Building Official
Date: 04/25/2019
Meeting Date: 05/14/2019



TITLE

2018 Building Code Adoption Update

STAFF RECOMMENDED ACTION:

Staff recommends that Council review this item, provide feedback, and move it forward for adoption of the 2018 suite of codes at the June 4th Council Meeting.

EXECUTIVE SUMMARY:

Building Safety is proposing to move forward with adopting the latest suite of model building codes. The proposed codes with local amendments include: 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 and Spa Code (ISPSC), 2017 NFPA 70 - National Electrical Code (NEC) and A117.1-2017 Standard for Accessible and Useable Buildings and Facilities.

The last code adoption occurred in 2013 when the City of Flagstaff adopted the 2012 International Codes. The current adopted codes are as follows: 2012 IBC, 2012 IRC, 2012 IEBC, 2012 IMC, 2012 IPC, 2012 IFGC, 2009 IECC, 2011 NEC and A117.1-2009 Standard for Accessible and Useable Buildings and Facilities. At the time of the 2012 code adoption, it was decided to adopt the 2009 International Energy Conservation Code instead of the 2012 International Energy Conservation Code.

The International Code Council (ICC), a developer and publisher of model codes, is on a 3-year code update cycle, however, the City of Flagstaff has opted to adopt the model codes every other cycle, or every 6 years. Flagstaff's adoption cycle aligns with most other jurisdictions across Arizona.

There are many benefits to adopting the latest versions of the suite of codes. Benefits include providing consistent minimum standards, protecting consumers, keeping up with new technology, increased energy and cost savings and lower insurance premiums to name a few.

The City Attorney's Office is still reviewing the proposed local amendments. If any changes are made to the proposed amendments as a result of that review, those changes will be identified at the June 4th Council Meeting.

INFORMATION:

Throughout the past year Building Safety has been working hard on public outreach training sessions, open houses, presenting to other Boards and Commissions, advertising on the local radio show and in the newspaper as well as social media. Building Safety met with the Building and Fire Code Board of Appeals on three occasions and received recommendations on the proposed code amendments. We also met with Sustainability staff to ensure the proposed codes and amendments align with the Climate Action and Adaption Plan. The City of Flagstaff and Coconino County partnered together to provide 10 public outreach training sessions over the course of 9 months addressing all substantial code changes as well as training on the proposed codes. At the conclusion of the 10 training sessions, we recorded an overall attendance of 257 people. Their professions ranged from internal staff, contractors, design professionals, homeowners, developers and staff from other jurisdictions.

Building Safety also hosted 2 open houses to allow for as much community involvement as possible. The attendance of both open houses combined was 18 people.

Attachments: [Building Code Adoption Timeline](#)
 [Proposed 2018 Building Code Amendments](#)
 [Proposed 2018 Building Code Amendments \(Annotated\)](#)
 [Current Adopted Building Code Amendments](#)
 [Building Code Amendments Summary](#)
 [2018 Building Code Adoption and Amendments Presentation](#)

Adoption Timeline for 2018 Building & Fire Codes

<u>Date</u>	<u>Task</u>	
3/2018 - 9/2018	Gather Data for Analysis of Code Changes	
7/2018 - 10/2018	Revise building amendments for proposed code adoption	
10/24/2018	Final Review of draft amendments prior to release	
10/26/2018	Release draft amendments to internal program	
10/31/2018	Feedback due from internal program	
11/5/2018	Email rollout to Building & Fire Code advisory board & Flex charter group	
	Code Update Training for staff, design professionals & public	Attendants
7/25/2018	2018 International Residential Code Update Training	33
8/9/2018	2018 International Residential Code Update Training	53
8/22/2018	2018 International Building Code & 2018 International Existing Building Code Update Training	34
9/13/2018	2018 International Energy Conservation Code & 2018 International Solar Energy Provisions Code Update Training	18
10/3/2018	2018 International Plumbing Code & 2018 International Fuel Gas Code Update Training	24
10/18/2018	2017 National Electric Code/NFPA 70 Code Update Training	16
11/14/2018	2018 International Mechanical Code & 2018 International Swimming Pool and Spa Code Update Training	15
12/13/2018	2018 International Fire Code Update Training	35
1/30/2019	2018 International Residential Code Update Training	17
3/7/2019	2018 International Energy Conservation Code Update Training	12
	Meetings with Boards & Commissions & Public Outreach	
11/8/2018	1st Building & Fire Code Advisory Board Meeting - Meeting was continued	
11/21/2018	Feedback due from Building & Fire Code Advisory Board	
11/30/2018	Revise amendments from feedback	
12/4/2018	2nd Building & Fire Code Advisory Board Meeting - Approved to move forward	
12/12/2019	Presented proposed codes & amendments to Northern Arizona Builders Association	
1/22/2019	Commission on Inclusion & Adaptive Living - Approved to move forward	
1/25/2019	KAFF Community Café - spoke about proposed code adoption	
2/5/2019	Public Outreach on all new codes and amendments - Murdoch Center	10
2/7/2019	Public Outreach on all new codes and amendments - Aquaplex	8
2/8/2019	Meet with Sustainability to tie proposed Building Codes to Climate Action & Adaptation Plan	
2/13/2019	Planning & Zoning Commission - Approved to move forward	
2/28/2019	Sustainability Commission - Approved to move forward	
3/1/2019	Revise amendments from feedback on presentations & outreach	
4/2/2019	3rd Building & Fire Advisory Board Meeting - presenting proposed changes from boards & commissions & outreach sessions	
5/14/2019	City Council Work Session - Building and Fire Code Presentation	
5/17/2019	Revise amendments from feedback on council work session	
6/4/2019	City Council Meeting - 1st read Building and Fire Code Adoption	
6/18/2019	City Council Meeting - 2nd read Building and Fire Code Adoption	
7/18/2019	New Building & Fire Codes will be in effect	
7/19/2019 - 12/31/2019	Accept submittals designed under either the 2012 or 2018 Building Codes - (Grace Period)	
1/1/2020	All submittals must be designed to the 2018 Building Codes	

FLAGSTAFF CITY CODE, TITLE 4, BUILDING REGULATIONS

TITLE 4 BUILDING REGULATIONS

CHAPTERS :

4-01 ADMINISTRATIVE ENACTMENTS

4-02 2018 INTERNATIONAL BUILDING CODE (IBC) AMENDMENTS

4-03 2018 INTERNATIONAL RESIDENTIAL CODE (IRC) AMENDMENTS

4-04 2018 INTERNATIONAL EXISTING BUILDING CODE (IEBC) AMENDMENTS

4-05 2018 INTERNATIONAL MECHANICAL CODE (IMC) AMENDMENTS

4-06 2018 INTERNATIONAL PLUMBING CODE (IPC) AMENDMENTS

4-07 2018 INTERNATIONAL FUEL GAS CODE (IFGC) AMENDMENTS

4-08 2018 INTERNATIONAL ENERGY CONSERVATION CODE (IECC) AMENDMENTS

4-09 2018 INTERNATIONAL SOLAR ENERGY PROVISIONS (ISEP) AMENDMENTS

4-10 2018 INTERNATIONAL SWIMMING POOL AND SPA CODE (ISPSC) AMENDMENTS

4-11 NATIONAL ELECTRICAL CODE (NEC) , 2017 EDITION, AMENDMENTS

FLAGSTAFF CITY CODE, TITLE 4, BUILDING REGULATIONS

CHAPTER 4-01 ADMINISTRATIVE ENACTMENTS

SECTIONS:

4-01-001-0001 DEFINITIONS
4-01-001-0002 ADOPTION OF MODEL CODES
4-01-001-0003 SAVING CLAUSE
4-01-001-0004 VIOLATION AND PENALTIES

4-01-001-0001 DEFINITIONS

As used in this City of Flagstaff 2019 Building Code Amendments and all of the referenced herein the adopted model codes, the following terms shall have the meaning herein prescribed:

A. Wherever the word "Municipality" or "[Name of Jurisdiction]" is used, it shall be mean the City of Flagstaff.

B. Wherever the term "Department of Building Safety" is used, it shall mean "Development Services Division."

C. Wherever the term "Corporation Counsel" is used in this Chapter, it shall mean the Attorney for the City of Flagstaff (Ordinance 587:8-14-62).

D. Wherever the term "Administrative Authority" is used in conjunction with publicly provided utilities (natural gas, electricity, internet and broad band service, telephone, and cable television), it shall mean the current contract company providing the respective service. Wherever the term "Administrative Authority" is used in conjunction with publicly provided utilities or permits (water, sewer, storm water management and/or building permits), it shall mean the City of Flagstaff.

4-01-001-0002 ADOPTION OF MODEL CODES

There are hereby adopted by the City Council of the City of Flagstaff for the purposes of establishing rules and regulations for the construction, alteration, removal, demolition, equipment, use and occupancy, alteration, removal, maintenance of buildings and structures, including permits and penalties, those certain model codes known and referred to with particularity as:

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)*

FLAGSTAFF CITY CODE, TITLE 4, BUILDING REGULATIONS

2018 International Energy Conservation Code (IECC)*

2018 International Solar Energy Provisions (ISEP)*

2018 International Swimming Pool and Spa Code (ISPSC)*

National Electrical Code (NEC), 2017 Edition**

ICC A117.1-2017, Accessible and Usable Building and Facilities*

1997 Uniform Housing Code***

1997 Uniform Administrative Code***

1997 Uniform Code for the Abatement of Dangerous Buildings***

***Published by International Code Council (ICC)**

**** Published by National Fire Protection Association (NFPA)**

***** Published by International Conference of Building Officials (ICBO)**

One (1) copy of which is on file in the office of the City Clerk of the City of Flagstaff, and the same made part hereof by this reference as if fully and completely herein set forth. The provisions of the aforesated Codes shall be controlling for construction within the corporate limits of the City of Flagstaff.

4-01-001-0003 SAVING CLAUSE

Nothing in this Chapter or in the 2018 International Codes, National Electrical Code, ICC A117.1-2017, and Uniform Codes hereby adopted shall be construed to affect any suit or proceeding now pending in any court, or any rights acquired, or liability incurred, or any cause or causes of action acquired or existing, under any act or ordinances replaced hereby. Nor shall any right or remedy of any character be lost, impaired, or affected by this Chapter.

4-01-001-0004 VIOLATION AND PENALTIES

A. Violations. It shall be unlawful for any person, firm or corporation to erect, construct, enlarge, alter, repair, move, improve, remove, convert, demolish, equip, use or maintain any building or permit the same to be done in violation of this Code.

B. Penalties. Any person, firm, or corporation violating any provision of this Code shall be deemed guilty of a misdemeanor, and upon conviction thereof, shall be punishable by a fine and/or imprisonment set forth by Flagstaff City Code, Title I, Chapter 1-04 General Penalty. Each separate day or any portion thereof, during which any violation of this Code occurs or continues, shall be deemed to constitute a separate offense.

FLAGSTAFF CITY CODE, TITLE 4, BUILDING REGULATIONS

CHAPTER 4-02 2018 INTERNATIONAL BUILDING CODE

4-02-001-0001 AMENDMENTS, ADDITIONS, AND DELETIONS

The following provisions shall have the effect of either amending, adding to, or deleting from the 2018 International Building Code adopted in Flagstaff City Code, Title 4, Building Regulations, Chapter 4-01, Administrative Enactments, Section 4-01-001-0002, Adoption of Model Codes.

CHAPTER 1 SCOPE AND ADMINISTRATION

Section 101 General

Amend 2018 IBC 101.2.1, Appendices, by adding:

The following Appendices are hereby adopted as part of the IBC:

APPENDIX C - Group U - Agricultural Buildings
APPENDIX I - Patio Covers
APPENDIX J - Grading
APPENDIX N - Replicable Buildings

Section 103 Department of Building Safety

Amend 2018 IBC 103.1, Creation of enforcement agency, by deleting and replacing with:

The Building Safety Program of the Planning & Development Services Section, Community Development Division is appointed as the regulating office and the official in charge thereof shall be known as the Building Official.

Section 104 Duties and Powers of Building Official

Amend 2018 IBC 104.7, Department records, by deleting and replacing with:

The Building Official shall keep comprehensive records of applications, permits issued, certificates issued, inspections made, reports rendered, and of notices of orders issued. All such records shall be open to public inspection at the stated office hours but shall not be removed from the office of the Building Official. All records are kept in both hard copy and electronic format. The electronic format information may be requested on a "walk-in" basis and reviewed during normal working hours. Copies or inspection of original documentation requires written notice and reasonable amount of time for Staff to collect the required records from an off-site warehouse location. Written requests will go through the City Clerk's office for processing.

Section 105 Permits

Amend 2018 IBC 105.1, Required, by adding:

Approved portable equipment used in conjunction with special events in public locations (parks, parking lots, public owned land, et cetera) of 25 kW or greater shall have an Over-the-Counter Permit issued and a licensed electrical contractor for installation or set up. The building inspector must be given immediate notice when an installation is ready for either rough or final inspection.

Amend 2018 IBC 105.1.1 Annual permit, by deleting and replacing with:

FLAGSTAFF CITY CODE, TITLE 4, BUILDING REGULATIONS

In lieu of an individual permit for minor work on an already approved electrical, gas, mechanical or plumbing installation, the building official may issue an annual permit upon application to any person, firm or corporation regularly employing one or more qualified tradespersons on the premises owned or operated by the permit applicant.

Amend 2018 IBC 105.1.2, Annual permit records, by deleting in its entirety.

Amend 2018 IBC 105.1 Annual permit, by adding subsections 105.1.2 through 105.1.7:

105.1.2 Application and fees. Application for an annual permit shall be filed with the building official, along with the application fee set forth in the city fee schedule.

105.1.3 Renewal application and fee. Annual permits expire on December 31. Application to renew an annual permit shall be filed by December 15, with the building official, along with the renewal application fee set forth in the city fee schedule.

105.1.4 Denial of application. If the application or renewal is denied, the fee shall be refunded. The applicant may appeal the denial to the Building and Fire Code Board of Appeals within 10 days after notice of the denial.

105.1.5 Suspension and revocation. The building official may suspend or revoke an annual permit upon violation of this code, including failure to apply for permits and inspections when required. Written notice of suspension or revocation shall be sent to the permit holder at least 10 days before suspension or revocation. Appeal may be made to the Building and Fire Code Board of Appeals within 10 days after notice of suspension or revocation. There is no fee refund if an annual permit is suspended or revoked.

105.1.6 Inspections. The building official may inspect all work and reject work or request corrections for any work in violation of this code.

105.1.7 Annual permit records. The person to whom an annual permit is issued shall keep a detailed record of work made under the annual permit. The building official shall have access to such records at all times.

105.1.7.1 Record exceptions. Work reports are not required for:

1. Installing machines, equipment, and processes related to production or testing;
2. Repairing electrical, plumbing, or mechanical systems;
3. Moving cases, counters, and partitions not over 5 feet 9 inches tall.

Amend 2018 IBC 105.2, Work exempt from permit, as follows:

Add the following to Building Item #1: Accessory structures with floor area less than 120 square feet require a Minor Improvement Permit per Flagstaff City Code, Title 10, Flagstaff Zoning Code.

Revise Building Item #2 as follows: Fences and walls not over six (6) feet high. Fences and walls six (6) feet and under require a Minor Improvement Permit per Flagstaff City Code, Title 10, Flagstaff Zoning Code.

FLAGSTAFF CITY CODE, TITLE 4, BUILDING REGULATIONS

Revise Electrical Item #1 by deleting and replacing with: Minor repair work, including the replacement of lamps.

Amend 2018 IBC 105.5, Expiration, by deleting and replacing with:

All Commercial Building Permits for new construction, remodels, additions, and alterations shall be valid for a maximum period of 730 days. One extension shall be granted for an additional 365 days when requested in writing and justifiable cause is demonstrated. After the one-time extension has expired, the next additional extension will require the applicant to pay one-half the original building permit fee (not including the plan review fee) for an additional 365-day extension. Permits not passing final inspection over 1095 days will be expired and the applicant must submit for a new permit and pay all associated fees.

All commercial Over-the-Counter Permits for plumbing, mechanical, electrical, and re-roofing shall be valid for a maximum period of 180 days.

Section 107 Submittal Documents

Amend 2018 IBC 107.1, General, by adding:

Pursuant to Arizona Revised Statutes governing the regulation of Registered Design Professionals (i.e. architects and engineers), all commercial occupancies for new construction, additions, alterations or repairs within the City of Flagstaff shall be prepared by an Arizona Registered Design Professional in good standing when:

1. The total square footage of any building exceeds 3,000 square feet, or
2. The total occupancy of the building exceeds twenty (20) persons, or
3. Any structural member required for the project exceeds twenty (20) feet in length.

The Arizona Registered Design Professional of Record must provide their seal upon all working drawings. Drawings not prepared by the Registered Design Professional of Record may be annotated as such, but the seal shall be affixed to all drawings in the construction working drawings set to indicate that coordination of the entire project has been done by the Registered Design Professional of Record.

An Arizona Registered Design Professional is required for any retaining walls having any imposed surcharges from adjacent structural elements or unbalanced loading that exceed four (4) feet.

An Arizona Registered Design Professional is required for electrical service entrance sections of 600 amperes and greater.

Section 109 Fees

Amend 2018 IBC 109.2, Schedule of permit fees, by adding:

The fee schedule shall be based upon City of Flagstaff Resolution Number 2017-21 and shall be annually reviewed. The revised fees shall be published by the Building Safety Program, Planning & Development Services Section. Building permit fee valuation shall be subject to approval for increases by the City of Flagstaff Council based upon the recommendation of the Building Official and shall be published for public review.

FLAGSTAFF CITY CODE, TITLE 4, BUILDING REGULATIONS

Amend 2018 IBC 109.4, Work commencing before permit issuance, by adding:

Any person who commences any work on a building, structure, electrical, gas, mechanical, or plumbing system before obtaining the necessary permits shall be subject to an investigation fee of \$94.00 or twice the permit fee, whichever is greater.

Amend 2018 IBC 109.5, Related fees, by adding:

Re-inspection fees may be assessed for each inspection or re-inspection when the portion of work for which the inspection was scheduled is not complete or when corrections from a previous inspection are not made. Other events which may require the imposition of a re-inspection fee are:

1. Failure to have the inspection record on the job site when the inspector arrives
2. The approved plans not on the job site for the inspector to review
3. Failure to provide access to the job site or area to be reviewed by the inspector.

Appeals for such fees are made to the Building Official. To obtain a re-inspection after the inspector has left notice that a fee shall be assessed, the applicant shall pay a \$94.00 fee to the Community Development counter.

Amend 2018 IBC 109.6, Refunds, by adding:

The applicant may receive up to 80% refund for the building permit fee (not including plan review fee) if no work has begun and no inspections have been performed. No refund of the plan review fee is authorized.

The Building Official shall determine, based upon work completed, the portion of fees paid to be refunded. There shall be no refund of any required deposit once the administrative routing and plan review process has begun.

Section 111 Certificate of Occupancy

Amend 2018 IBC 111.3, Temporary occupancy, by adding:

Temporary Certificate of Occupancies for residential construction (detached single family dwellings and duplexes) is not authorized.

Exceptions:

1. When a driveway approach cannot be poured due to weather, the Building Official can approve a Temporary Certificate of Occupancy after the applicant has posted a bond with the City of Flagstaff.
2. If the structure meets all the requirements for habitable space and sanitation, then a Temporary Certificate of Occupancy will be granted. Any unfinished items (i.e. bonus rooms, basement finishing, etc.) will be annotated in the inspection record as "not inspected" at the time of Temporary Certificate of Occupancy issuance. Applicants moving into a dwelling prior to receiving a Certificate of Occupancy may be evicted as the property is posted "NO OCCUPANCY" by the building inspector or Building Official.

Section 113 Board of Appeals

Amend 2018 IBC 113.1, General, by deleting and replacing with:

FLAGSTAFF CITY CODE, TITLE 4, BUILDING REGULATIONS

In order to hear and decide appeals of orders, decisions or determinations made by the Building Official relative to the application and interpretation of this code, there shall be and is hereby created a Building and Fire Code Board of Appeals per Flagstaff City Code, Title 2, Boards and Commissions.

CHAPTER 4 SPECIAL DETAILED REQUIREMENTS BASED ON OCCUPANCY AND USE Amend 2018 IBC by adding Section 429, Electric vehicle (EV) charging.

Amend 2018 IBC by adding 429.1, General:

429.1 General. Every newly permitted multi-family dwelling, commercial, and industrial structure shall provide parking space with "EV-ready outlets" per Table 429.1 and shall be identified on the construction documents. Construction documents shall indicate the location of the proposed EV-ready outlet(s). At least one EV-ready outlet shall be located in common use areas and available for use by all occupants.

An EV-ready outlet is "ready-to-go" with the addition of a plug-in electric vehicle (PEV) charging station. An EV-ready outlet consists of 208/240V, 50 ampere panel capacity, conduit, wiring, receptacle, and overcurrent protection device. The end point of the system must be near the planned location of the future EV charging station. Electric vehicle supply equipment shall be installed in accordance with 2017 NFPA 70/NEC.

Table 429.1

Parking Spaces Provided	EV-ready Parking Spaces Required
1-19	None
20-50	One (1)
51-100	Two (2)
100+	Three (3)

CHAPTER 11 ACCESSIBILITY

Section 1102 Compliance

Amend 2018 IBC 1102.1, Design, by deleting and replacing with:

Buildings and facilities shall be designed and constructed to be accessible in accordance with this code, ICC A117.1-2017.

CHAPTER 14 EXTERIOR WALLS

Section 1404 Installation of Wall Coverings

Amend 2018 IBC 1404.3, Vapor retarders, by deleting the following:

Class I or II vapor retarders are required on the interior side of frame walls in Climate Zones 5, 6, 7, 8, and Marine 4.

CHAPTER 15 ROOF ASSEMBLIES AND ROOFTOP STRUCTURES

Section 1505 Fire Classification

Amend 2018 IBC 1505.4, Class C roof assemblies, by deleting in its entirety.

Amend 2018 IBC 1505.5, Nonclassified roofing, by deleting in its entirety.

Section 1506 Materials

Amend 2018 IBC 1506.3, Product identification, by adding:

All roofing materials used must be a class "A" or "B" material and rolled roofing is to be of a self-adhering polymer bitumen type material.

FLAGSTAFF CITY CODE, TITLE 4, BUILDING REGULATIONS

Section 1507 Requirements for Roof Coverings

Amend 2018 IBC 1507.8, Wood shingles, by deleting in its entirety.

Amend 2018 IBC 1507.9, Wood shakes, by deleting in its entirety.

CHAPTER 16 STRUCTURAL DESIGN

Section 1607 Live Loads

Amend 2018 IBC Table 1607.1, Minimum Uniformly Distributed Live Loads and Minimum Concentrated Live Loads, by revising the following values:

#25 Residential

Habitable attics and attics served with fixed stairs: 40 psf

Sleeping rooms: 40 psf

Section 1608 Snow Loads

Amend 2018 IBC 1608.2, Ground snow loads, by deleting and replacing with:

The ground snow load shall be 60 psf.

Section 1612 Flood Loads

Amend 2018 IBC 1612.3, Establishment of flood hazard areas, as follows:

Replace "[INSERT DATE OF ISSUANCE]" with "09-03-2010".

APPENDIX J GRADING

Section J104 Permit Application and Submittals

Amend Appendix J by adding Section J104.5, Stormwater requirements, as follows:

1. Contractor shall submit to the Arizona Department of Environmental Quality a Notice of Intent (NOI) and a Notice of Termination (NOT) pursuant to the requirements of ARS Title 49, Chapter 2, Article 3.1. A copy of the submitted NOI and the NOT shall be provided to the City of Flagstaff Stormwater Section. The NOI shall be submitted prior to issuance of any City of Flagstaff grading, building, or offsite permits. The NOT shall be submitted prior to final acceptance of off-site improvements and the Certificate of Occupancy.

2. An Erosion Control Plan (ECP) shall be submitted to the City of Flagstaff Stormwater Section for review and approval as required by the City of Flagstaff Stormwater Manager. The ECP shall be prepared in accordance with the Arizona Department of Transportation (ADOT) Best Management Practices (BMP) Manual (or other BMPs as may be approved by the City of Flagstaff Stormwater Manager). Submittal shall be made concurrent with its respective permit application(s) and/or attached to the Civil Construction Document Plan Set submittal. Review timeframes shall be the same as the permit or civil reviews. City of Flagstaff permits that require an ECP will not be issued without review and approval by the City of Flagstaff Stormwater Section.

3. The ECP BMPs shall be set in place by the contractor, and the work inspected and approved the City of Flagstaff Stormwater Section prior to commencement of grading activities. The contractor shall contact the City of Flagstaff Stormwater Section for this pre-grading inspection.

FLAGSTAFF CITY CODE, TITLE 4, BUILDING REGULATIONS

4. During construction, the ECP BMPs shall remain in place, and shall be maintained until project completion as witnessed by a Final Grading Certification and the filing of a NOT. Failure to maintain ECP BMPs may result in a Stop Work Order. Permits will not be closed or finalized unless the site has been inspected and approved for final stabilization by the City of Flagstaff Stormwater Section. The contractor shall contact the City of Flagstaff Stormwater Section for this closure inspection.

5. In accordance with the provisions of this section, the City of Flagstaff may withhold permits, occupancy or enforce by other remedy in order to ensure compliance.

DRAFT

FLAGSTAFF CITY CODE, TITLE 4, BUILDING REGULATIONS

CHAPTER 4-03 2018 INTERNATIONAL RESIDENTIAL CODE

4-03-001-0001 AMENDMENTS, ADDITIONS, AND DELETIONS

The following provisions shall have the effect of either amending, adding to, or deleting from the 2018 International Residential Code adopted in Flagstaff City Code, Title 4, Building Regulations, Chapter 4-01, Administrative Enactments, Section 4-01-001-0002, Adoption of Model Codes.

CHAPTER 1 SCOPE AND ADMINISTRATION

Section R102 Applicability

Amend 2018 IRC R102.5, Appendices, by adding:

The following Appendices are hereby adopted as part of the IRC:

APPENDIX F - Radon Control Methods

APPENDIX H - Patio Covers

APPENDIX J - Existing Buildings and Structures.

APPENDIX M - Home Day Care, R-3 Occupancy

APPENDIX Q - Tiny houses

APPENDIX R - Light straw clay construction

APPENDIX S - Strawbale construction

APPENDIX T - Solar-ready provisions - detached one- and two-family dwellings and townhouses

Section R103 Department of Building Safety

Amend 2018 IRC R103.1, Creation of enforcement agency, by deleting and replacing with:

The Building Safety Program of the Planning & Development Services Section, Community Development Division is appointed as the regulating office and the official in charge thereof shall be known as the Building Official.

Section R104 Duties and Powers of the Building Official

Amend 2018 IRC R104.7, Department records, by deleting and replacing with:

The Building Official shall keep comprehensive records of applications, permits issued, certificates issued, inspections made, reports rendered, and of notices of orders issued. All such records shall be open to public inspection at the stated office hours but shall not be removed from the office of the Building Official. All records are kept in both hard copy and electronic format. The electronic format information may be requested on a "walk-in" basis and reviewed during normal working hours. Copies or inspection of original documentation requires written notice and reasonable amount of time for Staff to collect the required records from an off-site warehouse location. Written requests will go through the City Clerk's office for processing.

Section R105 Permits

Amend 2018 IRC R105.1, Required, by adding:

All manufactured housing (housing classified as modular, factory built or manufactured house) installed within the City of Flagstaff will be designed to meet Arizona Department of Housing, Office of Manufactured Housing standards. The City of Flagstaff enforces a 60 pound per square foot ground snow load for site-built construction. Arizona Department of Housing

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standards for snow winter areas in Arizona is not consistent with local conditions and owners should be aware of the differences.

For "used" manufactured housing or "resale"/relocated manufactured housing being brought into the City of Flagstaff, the following applies: As per direction from the Arizona Department of Housing, Office of Manufactured Housing, Arizona Revised Statutes Title 41, requires that all manufactured housing units be certified to meet the minimum standards of the United States Department of Housing and Urban Development and are to be designed in accordance with consistent Arizona Department of Housing standards for manufactured homes and related industries. An applicant requesting an installation permit and inspection will be required to provide proof to the Building Official of the current State certification or re-certification of the unit.

Amend 2018 IRC R105.2, Work exempt from permit, as follows:

Add the following to Building Item #1: Accessory structures with floor area less than 200 square feet require a Minor Improvement Permit per Flagstaff City Code, Title 10, Flagstaff Zoning Code.

Revise Building Item #2 as follows: Fences and walls not over six (6) feet high. Fences and walls 6 feet and under a Minor Improvement Permit per Flagstaff City Code, Title 10, Flagstaff Zoning Code.

Add the following to Building Item #10: These decks require a Minor Improvement Permit per Flagstaff City Code, Title 10, Flagstaff Zoning Code.

Amend 2018 IRC R105.5, Expiration, by deleting and replacing with:

Every Residential Building Permit issued shall become invalid unless the work authorized by such permit is completed within 365 days from the issuance date of the building permit. The Building Official is authorized to grant, when request for extension is received in writing, one extension not to exceed 180 days. The extension shall demonstrate cause such as financial, weather delays, material delivery, etc. The permit may be extended for an additional 365 days by paying one half the original permit fee (not including the plan review fee), thereby allowing a maximum time of completing the project to 30 months. Failure to obtain a Certificate of Occupancy within 30 months shall result in a report being recorded with the Coconino County Recorder's Office for incomplete work or no final inspection report of the project.

All residential Over-the-Counter Permits for plumbing, mechanical, electrical, and re-roofing shall be valid for a maximum period of 180 days.

Section R106 Construction Documents

Amend 2018 IRC R106.1, Submittal documents, by adding:

Residential, single family detached, structures are exempt from the requirements for a Registered Design Professional under Arizona Revised Statutes unless circumstances dictate the necessity for professional design submittal. Duplexes and triplex units which do not exceed 3,000 square feet, two stories or a total occupant load of twenty (20), may also be designed by a non-registrant as long as the units have only one owner.

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Sub-assemblies, such as commercially manufactured roof trusses or floor beams that indicate all imposed loading may be submitted without the seal of an Arizona Registered Design Professional. If a Registered Design Professional has sealed the construction documents, the Registered Design Professional shall state they have reviewed and approved of the design either on the construction documents or by providing a written letter stating as such, signed, sealed, and dated.

Any retaining walls having any imposed surcharges from adjacent structural elements or unbalanced loading that exceed four (4) feet, shall be designed by an Arizona Registered Design Professional and shall be submitted at the time of permit application.

Amend 2018 IRC R106.1 Submittal documents, by adding subsection R106.1.5, Model plans:

R106.1.5 Model plans. An applicant may submit a model plan, which is a residential construction plan used two or more times. If approved, only modifications not shown on the model plan must be submitted for review. All modifications shall be clearly identified by clouded symbols, deltas, or other appropriate means. The review fee for modifications only, will be hourly in accordance with city fee schedule. If, in building official's judgement, the modifications are excessive or inadequately defined, the full plan review fee will be charged.

Section R108 Fees

Amend 2018 IRC R108.2, Schedule of permit fees, by adding:

The fee schedule shall be based upon City of Flagstaff Resolution Number 2017-21 and shall be annually reviewed. The revised fees shall be published by the Building Safety Program, Planning & Development Services Section. Building permit fee valuation shall be subject to approval for increases by the City of Flagstaff Council based upon the recommendation of the Building Official and shall be published for public review.

Amend 2018 IRC 108.4, Related fees, by adding:

Re-inspection fees may be assessed for each inspection or re-inspection when the portion of work for which the inspection was scheduled is not complete or when corrections from a previous inspection are not made. Other events which may require the imposition of a re-inspection fee are:

1. Failure to have the inspection record on the job site when the inspector arrives
2. The approved plans not on the job site for the inspector to review
3. Failure to provide access to the job site or area to be reviewed by the inspector.

Appeals for such fees are made to the Building Official. To obtain a re-inspection after the inspector has left notice that a fee shall be assessed, the applicant shall pay a \$94.00 fee to the Community Development counter.

Amend 2018 IRC R108.5, Refunds, by adding:

The applicant may receive up to 80% refund for the building permit fee (not including plan review fee) if no work has begun and no inspections have been performed. No refund of the plan review fee is authorized.

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The Building Official shall determine, based upon work completed, the portion of fees paid to be refunded. There shall be no refund of any required deposit once the administrative routing and plan review process has begun.

Amend 2018 IRC R108.6, Work commencing before permit issuance, by adding:

Any person who commences any work on a building, structure, electrical, gas, mechanical, or plumbing system before obtaining the necessary permits shall be subject to an investigation fee of \$94.00 or twice the permit fee, whichever is greater.

Section R110 Certificate of Occupancy

Amend 2018 IRC R110.4, Temporary occupancy, by adding:

Temporary Certificate of Occupancies for residential construction (detached single family dwellings and duplexes) is not authorized.

Exceptions:

1. When a driveway approach cannot be poured due to weather, the Building Official can approve a Temporary Certificate of Occupancy after the applicant has posted a bond with the City of Flagstaff.
2. If the structure meets all the requirements for habitable space and sanitation, then a Temporary Certificate of Occupancy will be granted. Any unfinished items (i.e. bonus rooms, basement finishing, etc.) will be annotated in the inspection record as "not inspected" at the time of Temporary Certificate of Occupancy issuance. Applicants moving into a dwelling prior to receiving a Certificate of Occupancy may be evicted as the property is posted "NO OCCUPANCY" by the building inspector or Building Official.

Section R112 Board of Appeals

Amend 2018 IRC 112.1, General, by deleting and replacing with:

In order to hear and decide appeals of orders, decisions or determinations made by the Building Official relative to the application and interpretation of this code, there shall be and is hereby created a Building and Fire Code Board of Appeals per Flagstaff City Code, Title 2, Boards and Commissions.

CHAPTER 2 DEFINITIONS

Section R202 Definitions

Amend 2018 IRC Section R202 by adding:

ACCESSORY DWELLING UNIT. Accessory dwelling units (ADU) are defined by the Flagstaff City Code, Title 10 - Flagstaff Zoning Code.

ACCESSORY ENERGY SYSTEM. An accessory energy system will include wind turbines, PV solar, thermal solar, geo-thermal, bio-mass and other technologies that provide heating, cooling or electrical energy. The systems will be subject to a building permit and limited by zoning ordinances for visual, design, height and setback requirements.

CHAPTER 3 BUILDING PLANNING

Section R301 Design Criteria

Amend 2018 IRC Table R301.2(1), Climatic and Geographic Design Criteria, as follows:

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Ground snow load: 60 psf
Wind design - Speed (mph): 115
Wind design - Topographic Effects: NO
Wind design - Special wind region: NO
Wind design - Windborne debris zone: NO
Seismic design category: C
Subject to damage from - Weathering: Moderate
Subject to damage from - Frost line depth: 30 inches
Subject to damage from - Termite: Moderate to heavy
Winter design temperature: 4 degrees F
Ice barrier underlayment required: YES
Flood hazards: a)12-16-1975, b)01-19-1983, c)09-03-2010*
Air freezing index: 1013
Mean annual temperature: 45.4 degrees F

Residential heating and cooling equipment sizing using Manual J is optional per 2018 IRC M1401.3. When opting to use ACCA Manual J for HVAC system design, the criteria shall be from ACCA Manual J, Table 1A for Arizona, Flagstaff AP.

*The flood hazard dates reflect the current National Flood Insurance Program and the date of the currently effective "FIRM" Map (used by the City of Flagstaff). These maps are updated by the issuing agency and adopted by Storm Water Management without notice.

Amend 2018 IRC Table R301.5, Minimum Uniformly Distributed Live Loads, by revising the following values:

Habitable attics and attics served with fixed stairs: 40 psf
Sleeping rooms: 40 psf

Section R302 Fire-Resistant Construction

Amend 2018 IRC R302.13, Fire protection of floors, by adding the following to Exceptions:

5. Floor assemblies located directly over crawl spaces with fuel-fired or electric-powered heating appliances where the maximum distance from crawl space floor to finish floor above does not exceed four (4) feet at any point.

Section R303 Light, Ventilation and Heating

Amend 2018 IRC R303.4, Mechanical ventilation, by deleting and replacing with:

Where the air infiltration rate of a *dwelling unit* is 5 air changes per hour or less where tested with a blower door at a pressure of 0.2 inch wg (50 Pa) in accordance with Section N1102.4.1.2, the *dwelling unit* may be provided with whole-house mechanical ventilation in accordance with Section M1505.4.

Section R309 Garages and Carports

Amend 2018 IRC R309.5, Fire sprinklers, by deleting in its entirety.

Section R313 Automatic Fire Sprinkler Systems

Amend 2018 IRC R313.2, One- and two-family dwellings automatic fire sprinkler systems, by deleting and replacing with:

An automatic residential fire sprinkler system may be installed in one- and two-family dwellings. Arizona Revised Statutes prohibits jurisdictions from

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adopting any ordinance that mandates fire sprinklers in newly constructed one- and two-family dwellings.

CHAPTER 4 FOUNDATIONS

Section R410 General

Amend 2018 IRC R401.4.1, Geotechnical evaluation, by deleting and replacing with:

Construction in all new residential subdivisions require a geotechnical evaluation with foundation recommendations. In established areas of the City of Flagstaff, "in-fill" lots or vacant lots in subdivisions established prior to 1996, the designer may use a load-bearing pressure of 1500 pounds per square foot in lieu of a geotechnical evaluation. Upon site excavation of foundation, where the Building Official determines that in-place soils with an allowable bearing capacity of less than 1500 pounds per square foot (psf) are likely to be present at the site, then allowable bearing capacity shall be determined by a geotechnical evaluation at the expense of the permit applicant.

Section R403 Footings

Amend 2018 IRC R403.1, General, by adding:

All footings located less than eighteen (18) inches below existing grade to be air entrained, 3,500 psi concrete (severe weather), and pinned to rock at intervals specified for foundation wall vertical reinforcements or as specified by the Arizona Registered Design Professional of Record.

CHAPTER 5 FLOORS

Section R502 Wood Floor Framing

Amend 2018 IRC R502.3, Allowable joist spans, by adding:

The Western Lumber Span Tables for Floor and Ceiling Joists and Roof Rafters is adopted as a secondary reference to Tables R502.3.1(1) and R502.3.1(2)

Amend 2018 IRC R502.3.1, Sleeping areas and attic joists, by deleting and replacing with:

Table R502.3.1(1) shall be used to determine the maximum allowable span of floor joists that support sleeping areas and attics that are accessed by means of a fixed stairway in accordance with Section R311.7 provided that the design live load does not exceed 40 pounds per square foot (1.44 kPa) and the design dead load does not exceed 20 pounds per square foot (0.96 kPa). The allowable span of ceiling joists that support attics used for limited storage or no storage shall be determined in accordance with Section R802.5.

Section R507 Exterior Decks

Amend 2018 IRC R507.5, Deck beams, by adding:

The Western Lumber Span Tables for Floor and Ceiling Joists and Roof Rafters is adopted as a secondary reference to Tables R507.5.

Amend 2018 IRC R507.6, Deck joists, by adding:

The Western Lumber Span Tables for Floor and Ceiling Joists and Roof Rafters is adopted as a secondary reference to Tables R507.6.

Amend 2018 IRC R507.9.2, Lateral connection, by adding:

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Exception: Attached first floor decks that do not exceed 30 inches above grade at any point.

CHAPTER 7 WALL COVERING

Section R702 Interior Covering

Amend 2018 IRC R702.7, Vapor retarders, by deleting the following:

Class I or II vapor retarders are required on the interior side of frame walls in Climate Zones 5, 6, 7, 8, and Marine 4.

CHAPTER 8 ROOF-CEILING CONSTRUCTION

Section R802 Wood Roof Framing

Amend 2018 IRC R802.4.1, Rafter size, by adding:

The Western Lumber Span Tables for Floor and Ceiling Joists and Roof Rafters is adopted as a secondary reference to Tables R802.4.1(1) through R802.4.1(8).

CHAPTER 9 ROOF ASSEMBLIES

Section R904 Materials

Amend 2018 IRC R904.3, Material specifications and physical characteristics, by adding:

All roofing materials used shall be Class "A" or "B" and rolled roofing shall be a Class A or B material and shall be a self-adhering, polymer modified bitumen material.

Section R905 Requirements for Roof Coverings

Amend 2018 IRC R905.7, Wood shingles, by deleting in its entirety.

Amend 2018 IRC R905.8, Wood shakes, by deleting in its entirety.

CHAPTER 11 ENERGY EFFICIENCY

Section N1102 Building Thermal Envelope

Amend 2018 IRC N1102.1.2, Insulation and fenestration criteria, by revising/adding the following to Table N1102.1.2 as follows:

Climate Zone 5, Wood frame wall R-value, shall be 15 high density in existing 2x4 framed walls in remodel work only.

Footnote b, add Exception: Windows used for the installation of glazing for an approved passive solar design.

Amend 2018 IRC N1102.2, Equipment sizing and efficiency rating (Mandatory), by adding:

Furnaces installed in new construction shall be 90% condensing type furnaces. Exception: Replacement furnaces are to be voluntary 90% condensing type furnaces.

CHAPTER 20 BOILERS AND WATER HEATERS

Section M2005 Water Heaters

Amend 2018 IRC M2005.1, General, by adding:

Water heaters shall be capable of being removed without first removing a permanent portion of the building structure or any other appliance.

CHAPTER 24 FUEL GAS

Section G2445 Unvented Room Heaters

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Amend 2018 IRC Section G2445, Unvented Room Heaters, by deleting in its entirety.

CHAPTER 26 GENERAL PLUMBING REQUIREMENTS

Section P2602 Individual Water Supply and Sewage Disposal

Amend 2018 IRC P2602.1, General, by adding:

Building sanitary drainage piping and systems that connect to private sewage disposal systems shall be approved by Coconino County Environmental Quality prior to installation.

SECTION P2603 STRUCTURAL AND PIPING PROTECTION

Amend 2018 IRC P2603.5.1, Sewer depth, by deleting and replacing with:

Building sewers that connect to private sewage disposal systems shall be approved by Coconino County Environmental Quality. *Building sewers* that connect to the City of Flagstaff's sewage disposal system shall be not less than twelve (12) inches below grade.

CHAPTER 29 WATER SUPPLY AND DISTRIBUTION

Section P2903 Water Supply System

Amend 2018 IRC Table P2903.2, Maximum Flow Rates and Consumption for Plumbing Fixtures and Fixture Fittings, by revising and adding as follows:

Maximum Flow Rate or Quantity for a Water Closet to 1.3 gallon

Dual-flush water closets: The effective flush volume shall not exceed 1.28 gallons (4.8 liters). The effective flush volume is the average flush volume of two reduced flushes and one full flush. Flush volumes shall be tested in accordance with ASME A112.19.2/CSA B45.1 and ASME A112.19.14.

CHAPTER 31 VENTS

Section P3103 Vent Terminals

Amend 2018 IRC P3103.1.1, Roof termination, as follows:

Replace "6" with "twelve (12)" and delete "or 6 inches (mm) above the anticipated snow accumulation, whichever is greater".

CHAPTER 39 POWER AND LIGHTING DISTRIBUTION

Section E3901 Receptacle Outlets

Amend 2018 IRC E3901.9, Basements, garages and accessory buildings, by adding:

At least one required garage receptacle shall be a 208/240-volt individual branch circuit for purposes of electric vehicle (EV) charging. The service panel or subpanel circuit directory shall provide a 50-ampere minimum dedicated branch circuit and a branch circuit overcurrent device. Electric vehicle supply equipment shall be installed in accordance with 2017 NFPA 70/NEC.

Exception: Additions and alterations to existing one- or two-family dwellings and townhouses constructed per the IRC are exempt from the EV charging requirement.

APPENDIX M HOME DAY CARE - R-3 OCCUPANCY

Section A101 General

Amend 2018 IRC Appendix M, AM101.1, General, by adding:

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AM101.1.1 A Home Occupation Permit issued by the City of Flagstaff is required prior to receiving any building permits for conversions or improvements.

APPENDIX T SOLAR-READY PROVISIONS - DETACHED ONE- AND TWO-FAMILY DWELLINGS AND TOWNHOUSES

Section T101 Scope

Amend 2018 IRC Appendix T, T101.1, General, by deleting and replacing with:
These provisions shall be applicable for new construction.

Section T103 Solar-Ready Zone

Amend 2018 IRC Appendix T, T103.6, Capped roof penetration sleeve, by deleting in its entirety.

Amend 2018 IRC Appendix T, T103.8, Interconnection pathway, by deleting in its entirety.

Amend 2018 IRC Appendix T, T103.9, Electrical service reserved space, by deleting and replacing with:

When feasible, the main electrical service panel shall have a reserved space to allow installation of a dual pole circuit breaker for future solar electric installation and shall be labeled "For Future Solar Electric." The reserved space shall be positioned at the opposite (load) end from the input feeder location or main circuit location.

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CHAPTER 4-04

2018 INTERNATIONAL EXISTING BUILDING CODE

4-04-001-0001 AMENDMENTS, ADDITIONS, AND DELETIONS

The following provisions shall have the effect of either amending, adding to, or deleting from the 2018 International Existing Building Code adopted in Flagstaff City Code, Title 4, Building Regulations, Chapter 4-01, Administrative Enactments, Section 4-01-001-0002, Adoption of Model Codes.

CHAPTER 1 SCOPE AND ADMINISTRATION

Section 105 Permits

Amend 2018 IEBC 105.1, Required, by adding:

Refer to the 2018 Amendments to Flagstaff City Code, Title 4, Building Code to the 2018 International Building Code (IBC) and 2018 and International Residential Code (IRC) for building permit requirements.

Amend 2018 IEBC 105.5, Expiration, by deleting and replacing with:

Refer to the 2018 Amendments to Flagstaff City Code, Title 4, Building Code to the 2018 International Building Code (IBC) and 2018 and International Residential Code (IRC) for the duration of building permits.

Section 112 Board of Appeals

Amend 2018 IEBC 112.1, General, by deleting and replacing with:

In order to hear and decide appeals of orders, decisions or determinations made by the Building Official relative to the application and interpretation of this code, there shall be and is hereby created a Building and Fire Code Board of Appeals per Flagstaff City Code, Title 2, Boards and Commissions.

CHAPTER 3 PROVISIONS FOR ALL COMPLIANCE METHODS

Section 301 Administration

Amend 2018 IEBC 301.5, Compliance with accessibility, by deleting and replacing with:

Accessibility requirements for existing buildings shall comply with the 2017 edition of ICC A117.1.

CHAPTER 4 REPAIRS

Section 408 Plumbing

Amend 2018 IEBC 408.2, Water closet replacement, by deleting and replacing with:

The maximum water consumption flow rates and quantities for all replaced water closets shall be 1.3 gallons per flushing cycle.

Dual-flush water closets: The effective flush volume shall not exceed 1.28 gallons (4.8 liters). The effective flush volume is the average flush volume of two reduced flushes and one full flush. Flush volumes shall be tested in accordance with ASME A112.19.2/CSA B45.1 and ASME A112.19.14.

CHAPTER 12 HISTORIC BUILDINGS

Section 1201 General

Amend 2018 IEBC 1201.2, Report, by adding subsection 1201.2.1, Heritage Preservation Commission:

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1201.2.1, Heritage Preservation Commission. Any changes to a structure in a historic district or to buildings listed on the City of Flagstaff Historic Registry shall be reviewed by the Community Investment Division, Heritage Preservation Officer, and Current Planning Program, Planning & Development Services Section, prior to issuing a building permit. The project may be referred to the Development Review Board and/or the Heritage Preservation Commission for complete staff review by the board members.

DRAFT

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CHAPTER 4-05 2018 INTERNATIONAL MECHANICAL CODE

4-05-001-0001 AMENDMENTS, ADDITIONS, AND DELETIONS

The following provisions shall have the effect of either amending, adding to, or deleting from the 2018 International Mechanical Code (IMC) adopted in Flagstaff City Code, Title 4, Building Regulations, Chapter 4-01, Administrative Enactments, Section 4-01-001-0002, Adoption of Model Codes.

CHAPTER 1 SCOPE AND ADMINISTRATION

Section 106 Permits

Amend 2018 IMC 106.5.2, Fee schedule, by deleting and replacing with:

The fees for all plumbing work shall be in accordance with 2018 IBC 109.2, as adopted and amended by the City of Flagstaff.

Amend 2018 IMC 106.5.3, Fee refunds, by deleting and replacing with:

Refunds shall be in accordance with 2018 IBC 109.6, as adopted and amended by the City of Flagstaff.

Section 108 Violations

Amend 2018 IMC 108.4, Violation penalties, by deleting and replacing with:

Violation penalties shall be in accordance with 2018 IBC 114.4 as adopted and amended by the City of Flagstaff.

Amend 2018 IMC 108.5, Stop work orders, by deleting and replacing with:

Stop work orders shall be in accordance with 2018 IBC Section 115, as adopted and amended by the City of Flagstaff.

Section 109 Means of Appeal

Amend 2018 IMC 109.1, Application for appeal, by deleting and replacing with:

In order to hear and decide appeals of orders, decisions or determinations made by the Building Official relative to the application and interpretation of this code, there shall be and is hereby created a Building and Fire Code Board of Appeals per Flagstaff City Code, Title 2, Boards and Commissions.

CHAPTER 3 GENERAL REGULATIONS

Section 304 Installation

Amend 2018 IMC 304.2, Conflicts, by deleting and replacing with:

Where conflicts between this code and the conditions of the listing or the manufacturer's installation instructions occur, the listing and manufacturer's installation requirements shall apply.

CHAPTER 9 SPECIFIC APPLIANCES, FIREPLACES AND SOLID FUEL-BURNING EQUIPMENT

Section 903 Factory-Built Fireplaces

Amend 2018 IMC 903.3, Unvented gas log heaters, by deleting and replacing with:

An unvented gas log heater shall not be installed at any time unless first approved by the local gas utility company. A signed and dated letter of such approval shall be submitted to the Building Official before a permit can be issued.

FLAGSTAFF CITY CODE, TITLE 4, BUILDING REGULATIONS

CHAPTER 10 BOILERS, WATER HEATERS AND PRESSURE VESSELS

Section 1002 Water Heaters

Amend 2018 IMC 1002.1, General, by revising the second sentence to read:

Water heaters shall be capable of being removed without first removing a permanent portion of the building structure or any other appliance.

DRAFT

FLAGSTAFF CITY CODE, TITLE 4, BUILDING REGULATIONS

CHAPTER 4-06 2018 INTERNATIONAL PLUMBING CODE

4-06-001-0001 AMENDMENTS, ADDITIONS, AND DELETIONS

The following provisions shall have the effect of either amending, adding to, or deleting from the 2018 International Plumbing Code (IPC) adopted in Flagstaff City Code, Title 4, Building Regulations, Chapter 4-01, Administrative Enactments, Section 4-01-001-0002, Adoption of Model Codes.

CHAPTER 1 SCOPE AND ADMINISTRATION

Section 106 Fees

Amend 2018 IPC 106.6.2, Fee schedule, by deleting and replacing with:

The fees for all plumbing work shall be in accordance with 2018 IBC 109.2, as adopted and amended by the City of Flagstaff.

Amend 2018 IPC 106.6.3, Fee refunds, by deleting and replacing with:

Refunds shall be in accordance with 2018 IBC 109.6, as adopted and amended by the City of Flagstaff.

Section 109 Means of Appeal

Amend 2018 IPC 109.1, Application for appeal, by deleting and replacing with:

In order to hear and decide appeals of orders, decisions or determinations made by the Building Official relative to the application and interpretation of this code, there shall be and is hereby created a Building and Fire Code Board of Appeals per Flagstaff City Code, Title 2, Boards and Commissions.

Amend 2018 IPC Sections 109.2 through 109.7, by deleting in their entirety.

CHAPTER 3 GENERAL REGULATIONS

Section 301 General

Amend 2018 IPC 301.7, Conflicts, by deleting and replacing with:

Where conflicts between this Code and the conditions of the listing or the manufacturer's installation instructions occur, the listing or manufacturer's installation requirements shall apply.

Section 305 Protection of Pipes and Plumbing System Components

Amend 2018 IPC 305.4, Freezing, by revising the last sentence to read:

Exterior water supply piping shall be installed not less than thirty (30) inches below grade.

Amend 2018 IPC 305.4.1, Sewer depth, by deleting and replacing with:

Building sewers that connect to private sewage disposal systems shall be approved by Coconino County Environmental Quality prior to installation. Building sewers that connect to City-provided sewer shall be a minimum of twelve (12) inches below grade.

Section 312 Tests and Inspections

Amend 2018 IPC 312.1, Required tests, by replacing the fourth sentence with:

All plumbing system piping shall be tested with either water or air.

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Amend 2018 IPC 312.3, Drainage and vent air test, by deleting the first sentence.

Amend 2018 IPC 312.4, Drainage and vent final test, by deleting in its entirety.

Amend 2018 IPC 312.6, Gravity and sewer test, by deleting in its entirety.

Amend 2018 IPC 312.7, Forced sewer test, by deleting in its entirety.

CHAPTER 6 WATER SUPPLY AND DISTRIBUTION

Section 604 Design of Building Water Distribution System

Amend 2018 IPC Table 604.4, Maximum flow rates and consumption for plumbing fixtures and fixture fittings, by revising the following values:

Maximum Flow Rate or Quantity for a Urinal to 1 pint

Maximum Flow Rate or Quantity for a Water Closet to 1.3 gallon

Dual-flush toilets: The effective flush volume shall not exceed 1.28 gallons (4.8 liters). The effective flush volume is the average flush volume of two reduced flushes and one full flush. Flush volumes shall be tested in accordance with ASME A112.19.2/CSA B45.1 and ASME A112.19.14.

CHAPTER 7 SANITARY DRAINAGE

Section 703 Building Sewer

Amend 2018 IPC 703, Building sewer, by adding section 703.7, Building sewer locating means:

703.7 Building Sewer Locating Means. All non-metallic building sewer piping shall be installed with a plastic covered No. 12 AWG Type UF 600V tracer wire taped to the top of the piping with a minimum 10 mil tape. The building sewer tracer wire shall be green in color.

CHAPTER 9 VENTS

Section 903 Vent Terminals

Amend 2018 IPC 903.1, Roof termination, as follows:

Replace "[NUMBER OF INCHES]" with "twelve (12)".

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CHAPTER 4-07 2018 INTERNATIONAL FUEL GAS CODE

4-07-001-0001 AMENDMENTS, ADDITIONS, AND DELETIONS

The following provisions shall have the effect of either amending, adding to, or deleting from the 2018 International Fuel Gas Code (IFGC) adopted in Flagstaff City Code, Title 4, Building Regulations, Chapter 4-01, Administrative Enactments, Section 4-01-001-0002, Adoption of Model Codes.

CHAPTER 1 SCOPE AND ADMINISTRATION

Section 106 Fees

Amend 2018 IFGC 106.6.2, Fee schedule, by deleting and replacing with:

The fees for work shall be in accordance with 2018 IBC 109.2, as adopted and amended by the City of Flagstaff.

Amend 2018 IPC 106.6.3, Fee refunds, by deleting and replacing with:

Refunds shall be in accordance with 2018 IBC 109.6, as adopted and amended by the City of Flagstaff.

Section 109 Means of Appeal

Amend 2018 IFGC 109.1, Application for appeal, by deleting and replacing with:

In order to hear and decide appeals of orders, decisions or determinations made by the Building Official relative to the application and interpretation of this code, there shall be and is hereby created a Building and Fire Code Board of Appeals per Flagstaff City Code, Title 2, Boards and Commissions.

Amend 2018 IFGC Sections 109.2 through 109.7, by deleting in their entirety.

CHAPTER 3 GENERAL REGULATIONS

Section 303 Appliance Location

Amend 2018 IFGC 303.3, Prohibited locations, by deleting numbers 3 and 4.

CHAPTER 4 GAS PIPING INSTALLATIONS

Section 403 Piping Materials

Amend 2018 IFGC 403.4.3, Copper and copper alloy, by deleting and replacing with:

Copper and brass, threaded copper, brass, and aluminum piping shall not be used for gas piping installations within the City of Flagstaff.

CHAPTER 6 SPECIFIC APPLIANCES

Section 621 Unvented Room Heaters

Amend 2018 IFGC Section 621, Unvented Room Heaters, by deleting in its entirety.

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CHAPTER 4-08 2018 INTERNATIONAL ENERGY CONSERVATION CODE

4-08-001-0001 AMENDMENTS, ADDITIONS, AND DELETIONS

The following provisions shall have the effect of either amending, adding to, or deleting from the 2018 International Energy Conservation Code (IECC) adopted in Flagstaff City Code, Title 4, Building Regulations, Chapter 4-01, Administrative Enactments, Section 4-01-001-0002, Adoption of Model Codes.

COMMERCIAL PROVISIONS

CHAPTER 1 SCOPE AND ADMINISTRATION

Section C101 Scope and General Requirements

Amend 2018 IECC, by adding Section C101.2.1, Appendices:

Provisions in the appendices shall not apply unless specifically adopted. The following Appendices are hereby adopted as part of the IECC:

APPENDIX CA - SOLAR-READY ZONE - COMMERCIAL

Section C109 Board of Appeals

Amend 2018 IECC C109.1, General, by deleting and replacing with:

In order to hear and decide appeals of orders, decisions or determinations made by the Building Official relative to the application and interpretation of this code, there shall be and is hereby created a Building and Fire Code Board of Appeals per Flagstaff City Code, Title 2, Boards and Commissions.

Amend 2018 IECC C109.3, Qualifications, by deleting in its entirety.

CHAPTER 2 DEFINITIONS

Section C202 General Definitions

Amend 2018 IECC C202, General definitions, by replacing the following definition with:

RESIDENTIAL BUILDING. For this code, includes detached one- and two-family dwellings and townhouses as well as Group R-2, R-3, and R-4 buildings three stories or less in height above grade plane or concrete podium, and without interior conditioned common entry/exit corridors. Where the building includes accessory common uses and/or commercial spaces, those portions of the building shall comply with the applicable commercial provisions of the IECC.

RESIDENTIAL PROVISIONS

CHAPTER 1 SCOPE AND ADMINISTRATION

Section R101 Scope and General Requirements

Amend 2018 IECC, by adding Section R101.2.1, Appendices.

Provisions in the appendices shall not apply unless specifically adopted. The following Appendices are hereby adopted as part of the IECC:

APPENDIX RA - SOLAR-READY ZONE - RESIDENTIAL

Section R109 Board of Appeals

Amend 2018 IECC R109.1, General, by deleting and replacing with:

In order to hear and decide appeals of orders, decisions or determinations made by the Building Official relative to the application and interpretation

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of this code, there shall be and is hereby created a Building and Fire Code Board of Appeals per Flagstaff City Code, Title 2, Boards and Commissions.

Amend 2018 IECC R109.3, Qualifications, by deleting in its entirety.

CHAPTER 2 DEFINITIONS

Section R202 General Definitions

Amend 2018 IECC R202, General definitions, by replacing the following definition with:

RESIDENTIAL BUILDING. For this code, includes detached one- and two-family dwellings and townhouses as well as Group R-2, R-3, and R-4 buildings three stories or less in height above grade plane or concrete podium, and without interior conditioned common entry/exit corridors. Where the building includes accessory common uses and/or commercial spaces, those portions of the building shall comply with the applicable commercial provisions of the IECC.

CHAPTER 4 RESIDENTIAL ENERGY EFFICIENCY

Section R402 Building Thermal Envelope

Amend 2018 IECC R402.1.2, Insulation and fenestration criteria, by adding the following to Table R402.1.2 as follows:

Climate Zone 5, Wood frame wall R-value: 15 high density in existing 2x4 framed walls in remodel work only

Footnote b, Exception: Windows used for the installation of glazing for approved passive solar design.

Amend 2018 IECC R403.7, Equipment sizing and efficiency rating (Mandatory), by adding:

Furnaces installed in new construction shall be 90% condensing type furnaces. Exception: Replacement furnaces are to be voluntary 90% condensing type furnaces.

APPENDIX RA SOLAR-READY PROVISIONS – DETACHED ONE-AND TWO-FAMILY DWELLING AND TOWNHOUSES

Section RA101 Scope

Appendix RA Amend 2018 IECC Appendix RA, RA101.1, General, by deleting and replacing with:

These provisions shall be applicable for new construction.

Section RA103 Solar-Ready Zone

Amend 2018 IECC Appendix RA, RA103.6, Interconnection pathway, by deleting in its entirety.

Amend 2018 IECC Appendix RA, RA103.7, Electrical service reserved space, by deleting and replacing with:

When feasible, the main electrical service panel shall have a reserved space to allow installation of a dual pole circuit breaker for future solar electric installation and shall be labeled "For Future Solar Electric." The reserved space shall be positioned at the opposite (load) end from the input feeder location or main circuit location.

FLAGSTAFF CITY CODE, TITLE 4, BUILDING REGULATIONS

CHAPTER 4-09 2018 INTERNATIONAL SOLAR ENERGY PROVISIONS

4-09-001-0001 AMENDMENTS, ADDITIONS, AND DELETIONS

The following provisions shall have the effect of either amending, adding to, or deleting from the 2018 International Solar Energy Provisions (ISEP) adopted in Flagstaff City Code, Title 4, Building Regulations, Chapter 4-01, Administrative Enactments, Section 4-01-001-0002, Adoption of Model Codes.

The 2018 ISEP is a compilation of all solar energy provisions found throughout the 2018 International Codes (IBC, IRC, IECC, IMC, IPC, IFC, and ISPS). As such, each code section contained within this document is also identified by its corresponding section number from the original International Code source, as detailed in the Letter Designations located in the Preface of the ISEP. Amendments to any section from the source codes, including the 2018 International Fire Code (IFC) as adopted under Flagstaff City Code, Title 5, shall apply to the 2018 ISEP.

FLAGSTAFF CITY CODE, TITLE 4, BUILDING REGULATIONS

CHAPTER 4-10 2018 INTERNATIONAL SWIMMING POOL AND SPA CODE

4-10-001-0001 AMENDMENTS, ADDITIONS, AND DELETIONS

The following provisions shall have the effect of either amending, adding to, or deleting from the 2018 International Swimming Pool and Spa Code (ISPSC) adopted in Flagstaff City Code, Title 4, Building Regulations, Chapter 4-01, Administrative Enactments, Section 4-01-001-0002, Adoption of Model Codes.

CHAPTER 1 SCOPE AND ADMINISTRATION

Section 108 Means of Appeal

Amend 2018 ISPSC 108.1, Application for appeal, by deleting and replacing with:

In order to hear and decide appeals of orders, decisions or determinations made by the Building Official relative to the application and interpretation of this code, there shall be and is hereby created a Building and Fire Code Board of Appeals per Flagstaff City Code, Title 2, Boards and Commissions.

Amend 2018 ISPSC Sections 108.2 through 108.7, by deleting in their entirety.

CHAPTER 2 DEFINITIONS

Section 202 Definitions

Amend 2018 ISPSC Section 202, Definitions, by adding:

RESIDENTIAL SWIMMING POOL (RESIDENTIAL POOL). A pool intended for use that is accessory to a residential setting and available only to the household and its guests including any structure intended for swimming or recreational bathing that contains water over eighteen (18) inches in depth. This includes in-ground, above ground, and on-ground swimming pools, hot tubs, spas, and fixed in place wading pools. Other pools shall be considered to be public pools for purposes of this code.

CHAPTER 3 GENERAL COMPLIANCE

Section 305 Barrier Requirements

Amend 2018 ISPSC 305.2.1, Barrier height and clearances, by revising as follows:

1. The top of the barrier shall be not less than sixty (60) inches above grade where measured on the side of the barrier that faces away from the pool or spa. Such height shall exist around the entire perimeter of the barrier and for a distance of three (3) feet measured horizontally from the outside of the required barrier.

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CHAPTER 4-11 NATIONAL ELECTRICAL CODE

4-11-001-0001 AMENDMENTS, ADDITIONS, AND DELETIONS

The following provisions shall have the effect of either amending, adding to, or deleting from the National Electrical Code (NEC), 2017 Edition, adopted in Flagstaff City Code, Title 4, Building Regulations, Chapter 4-01, Administrative Enactments, Section 4-01-001-0002, Adoption of Model Codes.

CHAPTER 1 GENERAL

Article 110 Requirements for Electrical Installations

Part I General

Amend 2017 NEC Article 110.5, Conductors, to read:

Conductors used to carry current shall be of copper only. Where the conductor material is not specified, the material and the sizes given in this Code shall apply to copper conductors. The use of aluminum wire shall be approved for feeders and service entrance conductors only and shall not be used for branch circuit wiring.

Amend 2017 NEC Article 110.7, Wiring integrity, by adding:

All equipment rated at 1000 amperes or more shall be tested for insulation breakdown, mechanical integrity, and workmanship prior to the equipment being energized. A certified high potential voltage test (hi-pot) shall be performed and a certificate issued to the Building Official. This test shall be performed in the presence of a Building Inspector and conducted by a testing firm approved by the Building Official.

Said test shall be performed for a period of one (1) minute, the application of a 60 hertz alternating potential of 1000 volts plus twice the rated phase to phase voltage of the equipment.

This test shall be performed between all phases to ground, phase to phase, and neutral if isolated.

CHAPTER 2 WIRING AND PROTECTION

Article 210 Branch Circuits

Part I General Provisions

Amend 2017 NEC Article 210.5, Identification for Branch Circuits, by adding:

(D) **Color Code.** Where 15, 20, or 30 ampere branch circuits requiring a neutral are installed in raceways or cable assemblies, the conductor of branch circuits connected to the same system shall conform to the following color code:

Volts	Phase	System	Phase A	Phase B	Phase C	Neutral
120/208	3	Wye	Black	Red	Blue	White
120/240	3	Delta	Black	Orange	Blue	White
277/480	3	Wye	Brown	Orange	Yellow	Gray

Article 250 Grounding and Bonding

Part II System Grounding

FLAGSTAFF CITY CODE, TITLE 4, BUILDING REGULATIONS

Amend 2017 NEC Article 250.30, Grounding Separately Derived Alternating-Current Systems, (A) Grounded Systems, (2) Supply-Side Bonding Jumper, by adding:

(c) All new building construction shall have a one-piece concrete-encased electrode and electrode conductor (Ufer ground), a minimum twenty (20) feet length in the footing, sized from the following table:

0-200 ampere service: 1 piece #4 copper (electrode and electrode conductor)

201-400 ampere service: 1 piece 1/0 copper (electrode and electrode conductor)

401-800 ampere service: 1 piece 2/0 copper (electrode and electrode conductor)

Larger than 800 ampere service: 1 piece 3/0 copper (electrode and electrode conductor)

Where the Ufer has been lost, damaged, or cannot be located, a ground ring or modification of the same consisting of thirty (30) feet of #2 bare copper wire, buried a minimum of thirty (30) inches deep in a trench, or a plate electrode per Article 250.53 (H) shall be required in lieu of a concrete-encased electrode.

FLAGSTAFF CITY CODE, TITLE 4, BUILDING REGULATIONS

TITLE 4 BUILDING REGULATIONS

CHAPTERS :

4-01 ADMINISTRATIVE ENACTMENTS

4-02 2018 INTERNATIONAL BUILDING CODE (IBC) AMENDMENTS

4-03 2018 INTERNATIONAL RESIDENTIAL CODE (IRC) AMENDMENTS

4-04 2018 INTERNATIONAL EXISTING BUILDING CODE (IEBC) AMENDMENTS

4-05 2018 INTERNATIONAL MECHANICAL CODE (IMC) AMENDMENTS

4-06 2018 INTERNATIONAL PLUMBING CODE (IPC) AMENDMENTS

4-07 2018 INTERNATIONAL FUEL GAS CODE (IFGC) AMENDMENTS

4-08 2018 INTERNATIONAL ENERGY CONSERVATION CODE (IECC) AMENDMENTS

4-09 2018 INTERNATIONAL SOLAR ENERGY PROVISIONS (ISEP) AMENDMENTS

4-10 2018 INTERNATIONAL SWIMMING POOL AND SPA CODE (ISPSC) AMENDMENTS

4-11 NATIONAL ELECTRICAL CODE (NEC) , 2017 EDITION, AMENDMENTS

LEGEND

NEW AMENDMENT

REQUIRED AMENDMENT

EXISTING AMENDMENT

EXISTING AMENDMENT - REVISED

FLAGSTAFF CITY CODE, TITLE 4, BUILDING REGULATIONS

CHAPTER 4-01 ADMINISTRATIVE ENACTMENTS

SECTIONS:

4-01-001-0001 DEFINITIONS
4-01-001-0002 ADOPTION OF MODEL CODES
4-01-001-0003 SAVING CLAUSE
4-01-001-0004 VIOLATION AND PENALTIES

4-01-001-0001 DEFINITIONS

As used in this City of Flagstaff 2019 Building Code Amendments and all of the referenced herein the adopted model codes, the following terms shall have the meaning herein prescribed:

A. Wherever the word "Municipality" or "[Name of Jurisdiction]" is used, it shall be mean the City of Flagstaff.

B. Wherever the term "Department of Building Safety" is used, it shall mean "Development Services Division."

C. Wherever the term "Corporation Counsel" is used in this Chapter, it shall mean the Attorney for the City of Flagstaff (Ordinance 587:8-14-62).

D. Wherever the term "Administrative Authority" is used in conjunction with publicly provided utilities (natural gas, electricity, internet and broad band service, telephone, and cable television), it shall mean the current contract company providing the respective service. Wherever the term "Administrative Authority" is used in conjunction with publicly provided utilities or permits (water, sewer, storm water management and/or building permits), it shall mean the City of Flagstaff.

4-01-001-0002 ADOPTION OF MODEL CODES

There are hereby adopted by the City Council of the City of Flagstaff for the purposes of establishing rules and regulations for the construction, alteration, removal, demolition, equipment, use and occupancy, alteration, removal, maintenance of buildings and structures, including permits and penalties, those certain model codes known and referred to with particularity as:

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)*

FLAGSTAFF CITY CODE, TITLE 4, BUILDING REGULATIONS

2018 International Energy Conservation Code (IECC)*

2018 International Solar Energy Provisions (ISEP)*

2018 International Swimming Pool and Spa Code (ISPSC)*

National Electrical Code (NEC), **2017** Edition**

ICC A117.1-**2017**, Standard for Accessible and Usable Buildings and Facilities*

1997 Uniform Housing Code***

1997 Uniform Administrative Code***

1997 Uniform Code for the Abatement of Dangerous Buildings***

*Published by International Code Council (ICC)

** Published by National Fire Protection Association (NFPA)

*** Published by International Conference of Building Officials (ICBO)

One (1) copy of which is on file in the office of the City Clerk of the City of Flagstaff, and the same made part hereof by this reference as if fully and completely herein set forth. The provisions of the aforesated Codes shall be controlling for construction within the corporate limits of the City of Flagstaff.

4-01-001-0003 SAVING CLAUSE

Nothing in this Chapter or in the 2018 International Codes, National Electrical Code, ICC A117.1-2017, and Uniform Codes hereby adopted shall be construed to affect any suit or proceeding now pending in any court, or any rights acquired, or liability incurred, or any cause or causes of action acquired or existing, under any act or ordinances replaced hereby. Nor shall any right or remedy of any character be lost, impaired, or affected by this Chapter.

4-01-001-0004 VIOLATION AND PENALTIES

A. Violations. It shall be unlawful for any person, firm or corporation to erect, construct, enlarge, alter, repair, move, improve, remove, convert, demolish, equip, use or maintain any building or permit the same to be done in violation of this Code.

B. Penalties. Any person, firm, or corporation violating any provision of this Code shall be deemed guilty of a misdemeanor, and upon conviction thereof, shall be punishable by a fine and/or imprisonment set forth by Flagstaff City Code, Title I, Chapter 1-04 General Penalty. Each separate day or any portion thereof, during which any violation of this Code occurs or continues, shall be deemed to constitute a separate offense.

FLAGSTAFF CITY CODE, TITLE 4, BUILDING REGULATIONS

CHAPTER 4-02 2018 INTERNATIONAL BUILDING CODE

4-02-001-0001 AMENDMENTS, ADDITIONS, AND DELETIONS

The following provisions shall have the effect of either amending, adding to, or deleting from the 2018 International Building Code adopted in Flagstaff City Code, Title 4, Building Regulations, Chapter 4-01, Administrative Enactments, Section 4-01-001-0002, Adoption of Model Codes.

CHAPTER 1 SCOPE AND ADMINISTRATION

Section 101 General

Amend 2018 IBC 101.2.1, Appendices, by adding:

The following Appendices are hereby adopted as part of the IBC:

APPENDIX C - Group U - Agricultural Buildings

APPENDIX I - Patio Covers

APPENDIX J - Grading

APPENDIX N - Replicable Buildings

Section 103 Department of Building Safety

Amend 2018 IBC 103.1, Creation of enforcement agency, by deleting and replacing with:

The Building Safety Program of the Planning & Development Services Section, Community Development Division is appointed as the regulating office and the official in charge thereof shall be known as the Building Official.

Section 104 Duties and Powers of Building Official

Amend 2018 IBC 104.7, Department records, by deleting and replacing with:

The Building Official shall keep comprehensive records of applications, permits issued, certificates issued, inspections made, reports rendered, and of notices of orders issued. All such records shall be open to public inspection at the stated office hours but shall not be removed from the office of the Building Official. All records are kept in both hard copy and electronic format. The electronic format information may be requested on a "walk-in" basis and reviewed during normal working hours. Copies or inspection of original documentation requires written notice and reasonable amount of time for Staff to collect the required records from an off-site warehouse location. Written requests will go through the City Clerk's office for processing.

Section 105 Permits

Amend 2018 IBC 105.1, Required, by adding:

Approved portable equipment used in conjunction with special events in public locations (parks, parking lots, public owned land, et cetera) of 25 kW or greater shall have an Over-the-Counter Permit issued and a licensed electrical contractor for installation or set up. The building inspector must be given immediate notice when an installation is ready for either rough or final inspection.

Amend 2018 IBC 105.1.1 Annual permit, by deleting and replacing with:

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In lieu of an individual permit for minor work on an already approved electrical, gas, mechanical or plumbing installation, the building official may issue an annual permit upon application to any person, firm or corporation regularly employing one or more qualified tradespersons on the premises owned or operated by the permit applicant.

Amend 2018 IBC 105.1.2, Annual permit records, by deleting in its entirety.

Amend 2018 IBC 105.1 Annual permit, by adding subsections 105.1.2 through 105.1.7:

105.1.2 Application and fees. Application for an annual permit shall be filed with the building official, along with the application fee set forth in the city fee schedule.

105.1.3 Renewal application and fee. Annual permits expire on December 31. Application to renew an annual permit shall be filed by December 15, with the building official, along with the renewal application fee set forth in the city fee schedule.

105.1.4 Denial of application. If the application or renewal is denied, the fee shall be refunded. The applicant may appeal the denial to the Building and Fire Code Board of Appeals within 10 days after notice of the denial.

105.1.5 Suspension and revocation. The building official may suspend or revoke an annual permit upon violation of this code, including failure to apply for permits and inspections when required. Written notice of suspension or revocation shall be sent to the permit holder at least 10 days before suspension or revocation. Appeal may be made to the Building and Fire Code Board of Appeals within 10 days after notice of suspension or revocation. There is no fee refund if an annual permit is suspended or revoked.

105.1.6 Inspections. The building official may inspect all work and reject work or request corrections for any work in violation of this code.

105.1.7 Annual permit records. The person to whom an annual permit is issued shall keep a detailed record of work made under the annual permit. The building official shall have access to such records at all times.

105.1.7.1 Record exceptions. Work reports are not required for:

1. Installing machines, equipment, and processes related to production or testing;
2. Repairing electrical, plumbing, or mechanical systems;
3. Moving cases, counters, and partitions not over 5 feet 9 inches tall.

Amend 2018 IBC 105.2, Work exempt from permit, as follows:

Add the following to Building Item #1: Accessory structures with floor area less than 120 square feet require a Minor Improvement Permit per Flagstaff City Code, Title 10, Flagstaff Zoning Code.

Revise Building Item #2 as follows: Fences and walls not over six (6) feet high. Fences and walls six (6) feet and under require a Minor Improvement Permit per Flagstaff City Code, Title 10, Flagstaff Zoning Code.

FLAGSTAFF CITY CODE, TITLE 4, BUILDING REGULATIONS

Revise Electrical Item #1 by deleting and replacing with: Minor repair work, including the replacement of lamps.

Amend 2018 IBC 105.5, Expiration, by deleting and replacing with:

All Commercial Building Permits for new construction, remodels, additions, and alterations shall be valid for a maximum period of 730 days. One extension shall be granted for an additional 365 days when requested in writing and justifiable cause is demonstrated. After the one-time extension has expired, the next additional extension will require the applicant to pay one-half the original building permit fee (not including the plan review fee) for an additional 365-day extension. Permits not passing final inspection over 1095 days will be expired and the applicant must submit for a new permit and pay all associated fees.

All commercial Over-the-Counter Permits for plumbing, mechanical, electrical, and re-roofing shall be valid for a maximum period of 180 days.

Section 107 Submittal Documents

Amend 2018 IBC 107.1, General, by adding:

Pursuant to Arizona Revised Statutes governing the regulation of Registered Design Professionals (i.e. architects and engineers), all commercial occupancies for new construction, additions, alterations or repairs within the City of Flagstaff shall be prepared by an Arizona Registered Design Professional in good standing when:

1. The total square footage of any building exceeds 3,000 square feet, or
2. The total occupancy of the building exceeds twenty (20) persons, or
3. Any structural member required for the project exceeds twenty (20) feet in length.

The Arizona Registered Design Professional of Record must provide their seal upon all working drawings. Drawings not prepared by the Registered Design Professional of Record may be annotated as such, but the seal shall be affixed to all drawings in the construction working drawings set to indicate that coordination of the entire project has been done by the Registered Design Professional of Record.

An Arizona Registered Design Professional is required for any retaining walls having any imposed surcharges from adjacent structural elements or unbalanced loading that exceed four (4) feet.

An Arizona Registered Design Professional is required for electrical service entrance sections of 600 amperes and greater.

Section 109 Fees

Amend 2018 IBC 109.2, Schedule of permit fees, by adding:

The fee schedule shall be based upon City of Flagstaff Resolution Number 2017-21 and shall be annually reviewed. The revised fees shall be published by the Building Safety Program, Planning & Development Services Section. Building permit fee valuation shall be subject to approval for increases by the City of Flagstaff Council based upon the recommendation of the Building Official and shall be published for public review.

FLAGSTAFF CITY CODE, TITLE 4, BUILDING REGULATIONS

Amend 2018 IBC 109.4, Work commencing before permit issuance, by deleting and replacing with:

Any person who commences any work on a building, structure, electrical, gas, mechanical, or plumbing system before obtaining the necessary permits shall be subject to an investigation fee of \$94.00 or twice the permit fee, whichever is greater.

Amend 2018 IBC 109.5, Related fees, by adding:

Re-inspection fees may be assessed for each inspection or re-inspection when the portion of work for which the inspection was scheduled is not complete or when corrections from a previous inspection are not made. Other events which may require the imposition of a re-inspection fee are:

1. Failure to have the inspection record on the job site when the inspector arrives
2. The approved plans not on the job site for the inspector to review
3. Failure to provide access to the job site or area to be reviewed by the inspector.

Appeals for such fees are made to the Building Official. To obtain a re-inspection after the inspector has left notice that a fee shall be assessed, the applicant shall pay a \$94.00 fee to the Community Development counter.

Amend 2018 IBC 109.6, Refunds, by adding:

The applicant may receive up to 80% refund for the building permit fee (not including plan review fee) if no work has begun and no inspections have been performed. No refund of the plan review fee is authorized.

The Building Official shall determine, based upon work completed, the portion of fees paid to be refunded. There shall be no refund of any required deposit once the administrative routing and plan review process has begun.

Section 111 Certificate of Occupancy

Amend 2018 IBC 111.3, Temporary occupancy, by adding:

Temporary Certificate of Occupancies for residential construction (detached single family dwellings and duplexes) is not authorized.

Exceptions:

1. When a driveway approach cannot be poured due to weather, the Building Official can approve a Temporary Certificate of Occupancy after the applicant has posted a bond with the City of Flagstaff.
2. If the structure meets all the requirements for habitable space and sanitation, then a Temporary Certificate of Occupancy will be granted. Any unfinished items (i.e. bonus rooms, basement finishing, etc.) will be annotated in the inspection record as "not inspected" at the time of Temporary Certificate of Occupancy issuance. Applicants moving into a dwelling prior to receiving a Certificate of Occupancy may be evicted as the property is posted "NO OCCUPANCY" by the building inspector or Building Official.

Section 113 Board of Appeals

Amend 2018 IBC 113.1, General, by deleting and replacing with:

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In order to hear and decide appeals of orders, decisions or determinations made by the Building Official relative to the application and interpretation of this code, there shall be and is hereby created a Building and Fire Code Board of Appeals per Flagstaff City Code, Title 2, Boards and Commissions.

CHAPTER 4 SPECIAL DETAILED REQUIREMENTS BASED ON OCCUPANCY AND USE

Amend 2018 IBC by adding Section 429, Electric vehicle (EV) charging.

Amend 2018 IBC by adding 429.1, General:

429.1 General. Every newly permitted multi-family dwelling, commercial, and industrial structure shall provide parking space with "EV-ready outlets" per Table 429.1 and shall be identified on the construction documents. Construction documents shall indicate the location of the proposed EV-ready outlet(s). At least one EV-ready outlet shall be located in common use areas and available for use by all occupants.

An EV-ready outlet is "ready-to-go" with the addition of a plug-in electric vehicle (PEV) charging station. An EV-ready outlet consists of 208/240V, 50 ampere panel capacity, conduit, wiring, receptacle, and overcurrent protection device. The end point of the system must be near the planned location of the future EV charging station. Electric vehicle supply equipment shall be installed in accordance with 2017 NFPA 70/NEC.

Table 429.1

Parking Spaces Provided	EV-ready Parking Spaces Required
1-19	None
20-50	One (1)
51-100	Two (2)
100+	Three (3)

CHAPTER 11 ACCESSIBILITY

Section 1102 Compliance

Amend 2018 IBC 1102.1, Design, by deleting and replacing with:

Buildings and facilities shall be designed and constructed to be accessible in accordance with this code, ICC A117.1-2017.

CHAPTER 14 EXTERIOR WALLS

Section 1404 Installation of Wall Coverings

Amend 2018 IBC 1404.3.1, Vapor retarders, by deleting the following:

Class I or II vapor retarders are required on the interior side of frame walls in Climate Zones 5, 6, 7, 8, and Marine 4.

CHAPTER 15 ROOF ASSEMBLIES AND ROOFTOP STRUCTURES

Section 1505 Fire Classification

Amend 2018 IBC 1505.4, Class C roof assemblies, by deleting in its entirety.

Amend 2018 IBC 1505.5, Nonclassified roofing, by deleting in its entirety.

Section 1506 Materials

Amend 2018 IBC 1506.3, Product identification, by adding:

All roofing materials used must be a class "A" or "B" material and rolled roofing is to be of a self-adhering polymer bitumen type material.

FLAGSTAFF CITY CODE, TITLE 4, BUILDING REGULATIONS

Section 1507 Requirements for Roof Coverings

Amend 2018 IBC 1507.8, Wood shingles, by deleting in its entirety.

Amend 2018 IBC 1507.9, Wood shakes, by deleting in its entirety.

CHAPTER 16 STRUCTURAL DESIGN

Section 1607 Live Loads

Amend 2018 IBC Table 1607.1, Minimum Uniformly Distributed Live Loads and Minimum Concentrated Live Loads, by revising the following values:

#25 Residential

Habitable attics and attics served with fixed stairs: 40 psf

Sleeping rooms: 40 psf

Section 1608 Snow Loads

Amend 2018 IBC 1608.2, Ground snow loads, by deleting and replacing with:

The ground snow load shall be 60 psf.

Section 1612 Flood Loads

Amend 2018 IBC 1612.3, Establishment of flood hazard areas, as follows:

Replace "[INSERT DATE OF ISSUANCE]" with "09-03-2010".

CHAPTER 23 WOOD

Section 2308 Conventional Light-Frame Construction

Amend 2018 IBC 2308.4.1.1, Allowable girder spans, by adding:

The Western Lumber Span Tables for Floor and Ceiling Joists and Roof Rafters is adopted as a secondary reference to Tables 2308.4.1.1(1) and 2308.4.1.1(2).

Amend 2018 IBC 2308.4.2.1, Span, by adding:

The Western Lumber Span Tables for Floor and Ceiling Joists and Roof Rafters is adopted as a secondary reference to Tables 2308.4.2.1(1) and 2308.4.2.1(2) and AWR STJR.

Amend 2018 IBC 2308.7.1, Ceiling joist spans, by adding:

The Western Lumber Span Tables for Floor and Ceiling Joists and Roof Rafters is adopted as a secondary reference to Tables 2308.7.1(1) and 2308.7.1(2) and AWR STJR.

Amend 2018 IBC 2308.7.2, Rafter spans, by adding:

The Western Lumber Span Tables for Floor and Ceiling Joists and Roof Rafters is adopted as a secondary reference to Tables 2308.7.2(1) through 2308.7.2(6) and AWR STJR.

APPENDIX J GRADING

Section J104 Permit Application and Submittals

Amend Appendix J by adding Section J104.5, Stormwater requirements, as follows:

1. Contractor shall submit to the Arizona Department of Environmental Quality a Notice of Intent (NOI) and a Notice of Termination (NOT) pursuant to the requirements of ARS Title 49, Chapter 2, Article 3.1. A copy of the submitted NOI and the NOT shall be provided to the City of Flagstaff Stormwater Section. The NOI shall be submitted prior to issuance of any City of

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Flagstaff grading, building, or offsite permits. The NOT shall be submitted prior to final acceptance of off-site improvements and the Certificate of Occupancy.

2. An Erosion Control Plan (ECP) shall be submitted to the City of Flagstaff Stormwater Section for review and approval as required by the City of Flagstaff Stormwater Manager. The ECP shall be prepared in accordance with the Arizona Department of Transportation (ADOT) Best Management Practices (BMP) Manual (or other BMPs as may be approved by the City of Flagstaff Stormwater Manager). Submittal shall be made concurrent with its respective permit application(s) and/or attached to the Civil Construction Document Plan Set submittal. Review timeframes shall be the same as the permit or civil reviews. City of Flagstaff permits that require an ECP will not be issued without review and approval by the City of Flagstaff Stormwater Section.

3. The ECP BMPs shall be set in place by the contractor, and the work inspected and approved the City of Flagstaff Stormwater Section prior to commencement of grading activities. The contractor shall contact the City of Flagstaff Stormwater Section for this pre-grading inspection.

4. During construction, the ECP BMPs shall remain in place, and shall be maintained until project completion as witnessed by a Final Grading Certification and the filing of a NOT. Failure to maintain ECP BMPs may result in a Stop Work Order. Permits will not be closed or finalized unless the site has been inspected and approved for final stabilization by the City of Flagstaff Stormwater Section. The contractor shall contact the City of Flagstaff Stormwater Section for this closure inspection.

5. In accordance with the provisions of this section, the City of Flagstaff may withhold permits, occupancy or enforce by other remedy in order to ensure compliance.

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CHAPTER 4-03 2018 INTERNATIONAL RESIDENTIAL CODE

4-03-001-0001 AMENDMENTS, ADDITIONS, AND DELETIONS

The following provisions shall have the effect of either amending, adding to, or deleting from the 2018 International Residential Code adopted in Flagstaff City Code, Title 4, Building Regulations, Chapter 4-01, Administrative Enactments, Section 4-01-001-0002, Adoption of Model Codes.

CHAPTER 1 SCOPE AND ADMINISTRATION

Section R102 Applicability

Amend 2018 IRC R102.5, Appendices, by adding:

The following Appendices are hereby adopted as part of the IRC:

APPENDIX F - Radon Control Methods

APPENDIX H - Patio Covers

APPENDIX J - Existing Buildings and Structures.

APPENDIX M - Home Day Care, R-3 Occupancy

APPENDIX Q - Tiny houses

APPENDIX R - Light straw clay construction

APPENDIX S - Strawbale construction

APPENDIX T - Solar-ready provisions - detached one- and two-family dwellings and townhouses

Section R103 Department of Building Safety

Amend 2018 IRC R103.1, Creation of enforcement agency, by deleting and replacing with:

The Building Safety Program of the Planning & Development Services Section, Community Development Division is appointed as the regulating office and the official in charge thereof shall be known as the Building Official.

Section R104 Duties and Powers of the Building Official

Amend 2018 IRC R104.7, Department records, by deleting and replacing with:

The Building Official shall keep comprehensive records of applications, permits issued, certificates issued, inspections made, reports rendered, and of notices of orders issued. All such records shall be open to public inspection at the stated office hours but shall not be removed from the office of the Building Official. All records are kept in both hard copy and electronic format. The electronic format information may be requested on a "walk-in" basis and reviewed during normal working hours. Copies or inspection of original documentation requires written notice and reasonable amount of time for Staff to collect the required records from an off-site warehouse location. Written requests will go through the City Clerk's office for processing.

Section R105 Permits

Amend 2018 IRC R105.1, Required, by adding:

All manufactured housing (housing classified as modular, factory built or manufactured house) installed within the City of Flagstaff will be designed to meet Arizona Department of Housing, Office of Manufactured Housing standards. The City of Flagstaff enforces a 60 pound per square foot ground snow load for site-built construction. Arizona Department of Housing

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standards for snow winter areas in Arizona is not consistent with local conditions and owners should be aware of the differences.

For "used" manufactured housing or "resale"/relocated manufactured housing being brought into the City of Flagstaff, the following applies: As per direction from the Arizona Department of Housing, Office of Manufactured Housing, Arizona Revised Statutes Title 41, requires that all manufactured housing units be certified to meet the minimum standards of the United States Department of Housing and Urban Development and are to be designed in accordance with consistent Arizona Department of Housing standards for manufactured homes and related industries. An applicant requesting an installation permit and inspection will be required to provide proof to the Building Official of the current State certification or re-certification of the unit.

Amend 2018 IRC R105.2, Work exempt from permit, as follows:

Add the following to Building Item #1: Accessory structures with floor area less than 200 square feet require a Minor Improvement Permit per Flagstaff City Code, Title 10, Flagstaff Zoning Code.

Revise Building Item #2 as follows: Fences and walls not over six (6) feet high. Fences and walls 6 feet and under a Minor Improvement Permit per Flagstaff City Code, Title 10, Flagstaff Zoning Code.

Add the following to Building Item #10: These decks require a Minor Improvement Permit per Flagstaff City Code, Title 10, Flagstaff Zoning Code.

Amend 2018 IRC R105.5, Expiration, by deleting and replacing with:

Every Residential Building Permit issued shall become invalid unless the work authorized by such permit is completed within 365 days from the issuance date of the building permit for dwellings 4000 square feet or less in area (conditioned area/within building thermal envelope and attached garage area) or 18 months from the issuance date of the building permit for dwellings exceeding 4000 square feet in area (conditioned area/within building thermal envelope and attached garage area). The Building Official is authorized to grant, when request for extension is received in writing, one extension not to exceed 180 days. The extension shall demonstrate cause such as financial, weather delays, material delivery, etc. The permit may be extended for an additional 365 days by paying one half the original permit fee (not including the plan review fee), thereby allowing a maximum time of completing the project to 30 months for dwellings 4000 square feet or less in area or 36 months for dwellings exceeding 4000 square feet in area. Failure to obtain a Certificate of Occupancy within the maximum time frames prescribed shall result in a report being recorded with the Coconino County Recorder's Office for incomplete work or no final inspection report of the project.

All residential Over-the-Counter Permits for plumbing, mechanical, electrical, and re-roofing shall be valid for a maximum period of 180 days.

Section R106 Construction Documents

Amend 2018 IRC R106.1, Submittal documents, by adding:

Residential, single family detached, structures are exempt from the requirements for a Registered Design Professional under Arizona Revised

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Statutes unless circumstances dictate the necessity for professional design submittal. Duplexes and triplex units which do not exceed 3,000 square feet, two stories or a total occupant load of twenty (20), may also be designed by a non-registrant as long as the units have only one owner.

Sub-assemblies, such as commercially manufactured roof trusses or floor beams that indicate all imposed loading may be submitted without the seal of an Arizona Registered Design Professional. If a Registered Design Professional has sealed the construction documents, the Registered Design Professional shall state they have reviewed and approved of the design either on the construction documents or by providing a written letter stating as such, signed, sealed, and dated.

Any retaining walls having any imposed surcharges from adjacent structural elements or unbalanced loading that exceed four (4) feet, shall be designed by an Arizona Registered Design Professional and shall be submitted at the time of permit application.

Amend 2018 IRC R106.1 Submittal documents, by adding subsection R106.1.5, Model plans:

R106.1.5 Model plans. An applicant may submit a model plan, which is a residential construction plan used two or more times. If approved, only modifications not shown on the model plan must be submitted for review. All modifications shall be clearly identified by clouded symbols, deltas, or other appropriate means. The review fee for modifications only, will be hourly in accordance with city fee schedule. If, in building official's judgement, the modifications are excessive or inadequately defined, the full plan review fee will be charged.

Section R108 Fees

Amend 2018 IRC R108.2, Schedule of permit fees, by adding:

The fee schedule shall be based upon City of Flagstaff Resolution Number 2017-21 and shall be annually reviewed. The revised fees shall be published by the Building Safety Program, Planning & Development Services Section. Building permit fee valuation shall be subject to approval for increases by the City of Flagstaff Council based upon the recommendation of the Building Official and shall be published for public review.

Amend 2018 IRC 108.4, Related fees, by adding:

Re-inspection fees may be assessed for each inspection or re-inspection when the portion of work for which the inspection was scheduled is not complete or when corrections from a previous inspection are not made. Other events which may require the imposition of a re-inspection fee are:

1. Failure to have the inspection record on the job site when the inspector arrives
2. The approved plans not on the job site for the inspector to review
3. Failure to provide access to the job site or area to be reviewed by the inspector.

Appeals for such fees are made to the Building Official. To obtain a re-inspection after the inspector has left notice that a fee shall be assessed, the applicant shall pay a \$94.00 fee to the Community Development counter.

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Amend 2018 IRC R108.5, Refunds, by adding:

The applicant may receive up to 80% refund for the building permit fee (not including plan review fee) if no work has begun and no inspections have been performed. No refund of the plan review fee is authorized.

The Building Official shall determine, based upon work completed, the portion of fees paid to be refunded. There shall be no refund of any required deposit once the administrative routing and plan review process has begun.

Amend 2018 IRC R108.6, Work commencing before permit issuance, by adding:

Any person who commences any work on a building, structure, electrical, gas, mechanical, or plumbing system before obtaining the necessary permits shall be subject to an investigation fee of \$94.00 or twice the permit fee, whichever is greater.

Section R110 Certificate of Occupancy

Amend 2018 IRC R110.4, Temporary occupancy, by adding:

Temporary Certificate of Occupancies for residential construction (detached single family dwellings and duplexes) is not authorized.

Exceptions:

1. When a driveway approach cannot be poured due to weather, the Building Official can approve a Temporary Certificate of Occupancy after the applicant has posted a bond with the City of Flagstaff.
2. If the structure meets all the requirements for habitable space and sanitation, then a Temporary Certificate of Occupancy will be granted. Any unfinished items (i.e. bonus rooms, basement finishing, etc.) will be annotated in the inspection record as "not inspected" at the time of Temporary Certificate of Occupancy issuance. Applicants moving into a dwelling prior to receiving a Certificate of Occupancy may be evicted as the property is posted "NO OCCUPANCY" by the building inspector or Building Official.

Section R112 Board of Appeals

Amend 2018 IRC 112.1, General, by deleting and replacing with:

In order to hear and decide appeals of orders, decisions or determinations made by the Building Official relative to the application and interpretation of this code, there shall be and is hereby created a Building and Fire Code Board of Appeals per Flagstaff City Code, Title 2, Boards and Commissions.

CHAPTER 2 DEFINITIONS

Section R202 Definitions

Amend 2018 IRC Section R202 by adding:

ACCESSORY DWELLING UNIT. Accessory dwelling units (ADU) are defined by the Flagstaff City Code, Title 10 - Flagstaff Zoning Code.

ACCESSORY ENERGY SYSTEM. An accessory energy system will include wind turbines, PV solar, thermal solar, geo-thermal, bio-mass and other technologies that provide heating, cooling or electrical energy. The systems will be subject to a building permit and limited by zoning ordinances for visual, design, height and setback requirements.

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CHAPTER 3 BUILDING PLANNING

Section R301 Design Criteria

Amend 2018 IRC Table R301.2(1), Climatic and Geographic Design Criteria, as follows:

Ground snow load: 60 psf
Wind design - Speed (mph): 115
Wind design - Topographic Effects: NO
Wind design - Special wind region: NO
Wind design - Windborne debris zone: NO
Seismic design category: C
Subject to damage from - Weathering: Moderate
Subject to damage from - Frost line depth: 30 inches
Subject to damage from - Termite: Moderate to heavy
Winter design temperature: 4 degrees F
Ice barrier underlayment required: YES
Flood hazards: a)12-16-1975, b)01-19-1983, c)09-03-2010*
Air freezing index: 1013
Mean annual temperature: 45.4 degrees F

Residential heating and cooling equipment sizing using Manual J is optional per 2018 IRC M1401.3. When opting to use ACCA Manual J for HVAC system design, the criteria shall be from ACCA Manual J, Table 1A for Arizona, Flagstaff AP.

*The flood hazard dates reflect the current National Flood Insurance Program and the date of the currently effective "FIRM" Map (used by the City of Flagstaff). These maps are updated by the issuing agency and adopted by Storm Water Management without notice.

Amend 2018 IRC Table R301.5, Minimum Uniformly Distributed Live Loads, by revising the following values:

Habitable attics and attics served with fixed stairs: 40 psf
Sleeping rooms: 40 psf

Section R302 Fire-Resistant Construction

Amend 2018 IRC R302.13, Fire protection of floors, by adding the following to Exceptions:

5. Floor assemblies located directly over crawl spaces with fuel-fired or electric-powered heating appliances where the maximum distance from crawl space floor to finish floor above does not exceed four (4) feet at any point.

Section R303 Light, Ventilation and Heating

Amend 2018 IRC R303.4, Mechanical ventilation, by deleting and replacing with:

Where the air infiltration rate of a *dwelling unit* is 5 air changes per hour or less where tested with a blower door at a pressure of 0.2 inch wg (50 Pa) in accordance with Section N1102.4.1.2, the *dwelling unit* may be provided with whole-house mechanical ventilation in accordance with Section M1505.4.

Section R309 Garages and Carports

Amend 2018 IRC R309.5, Fire sprinklers, by deleting in its entirety.

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Section R313 Automatic Fire Sprinkler Systems

Amend 2018 IRC R313.2, One- and two-family dwellings automatic fire sprinkler systems, by deleting and replacing with:

An automatic residential fire sprinkler system may be installed in one- and two-family dwellings. Arizona Revised Statutes prohibits jurisdictions from adopting any ordinance that mandates fire sprinklers in newly constructed one- and two-family dwellings.

CHAPTER 4 FOUNDATIONS

Section R410 General

Amend 2018 IRC R401.4.1, Geotechnical evaluation, by deleting and replacing with:

Construction in all new residential subdivisions require a geotechnical evaluation with foundation recommendations. In established areas of the City of Flagstaff, "in-fill" lots or vacant lots in subdivisions established prior to 1996, the designer may use a load-bearing pressure of 1500 pounds per square foot in lieu of a geotechnical evaluation. Upon site excavation of foundation, where the Building Official determines that in-place soils with an allowable bearing capacity of less than 1500 pounds per square foot (psf) are likely to be present at the site, then allowable bearing capacity shall be determined by a geotechnical evaluation at the expense of the permit applicant.

Section R403 Footings

Amend 2018 IRC R403.1, General, by adding:

All footings located less than eighteen (18) inches below existing grade to be air entrained, 3,500 psi concrete (severe weather), and pinned to rock at intervals specified for foundation wall vertical reinforcements or as specified by the Arizona Registered Design Professional of Record.

CHAPTER 5 FLOORS

Section R502 Wood Floor Framing

Amend 2018 IRC R502.3, Allowable joist spans, by adding:

The Western Lumber Span Tables for Floor and Ceiling Joists and Roof Rafters is adopted as a secondary reference to Tables R502.3.1(1) and R502.3.1(2)

Amend 2018 IRC R502.3.1, Sleeping areas and attic joists, by deleting and replacing with:

Table R502.3.1(1) shall be used to determine the maximum allowable span of floor joists that support sleeping areas and attics that are accessed by means of a fixed stairway in accordance with Section R311.7 provided that the design live load does not exceed 40 pounds per square foot (1.44 kPa) and the design dead load does not exceed 20 pounds per square foot (0.96 kPa). The allowable span of ceiling joists that support attics used for limited storage or no storage shall be determined in accordance with Section R802.5.

Section R507 Exterior Decks

Amend 2018 IRC R507.5, Deck beams, by adding:

The Western Lumber Span Tables for Floor and Ceiling Joists and Roof Rafters is adopted as a secondary reference to Tables R507.5.

Amend 2018 IRC R507.6, Deck joists, by adding:

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The Western Lumber Span Tables for Floor and Ceiling Joists and Roof Rafters is adopted as a secondary reference to Tables R507.6.

Amend 2018 IRC R507.9.2, Lateral connection, by adding:

Exception: Attached first floor decks that do not exceed 30 inches above grade at any point.

CHAPTER 7 WALL COVERING

Section R702 Interior Covering

Amend 2018 IRC R702.7, Vapor retarders, by deleting the following:

Class I or II vapor retarders are required on the interior side of frame walls in Climate Zones 5, 6, 7, 8, and Marine 4.

CHAPTER 8 ROOF-CEILING CONSTRUCTION

Section R802 Wood Roof Framing

Amend 2018 IRC R802.4.1, Rafter size, by adding:

The Western Lumber Span Tables for Floor and Ceiling Joists and Roof Rafters is adopted as a secondary reference to Tables R802.4.1(1) through R802.4.1(8).

CHAPTER 9 ROOF ASSEMBLIES

Section R904 Materials

Amend 2018 IRC R904.3, Material specifications and physical characteristics, by adding:

All roofing materials used shall be Class "A" or "B" and rolled roofing shall be a Class A or B material and shall be a self-adhering, polymer modified bitumen material.

Section R905 Requirements for Roof Coverings

Amend 2018 IRC R905.7, Wood shingles, by deleting in its entirety.

Amend 2018 IRC R905.8, Wood shakes, by deleting in its entirety.

CHAPTER 11 ENERGY EFFICIENCY

Section N1102 Building Thermal Envelope

Amend 2018 IRC N1102.1.2, Insulation and fenestration criteria, by revising/adding the following to Table N1102.1.2 as follows:

Climate Zone 5, Wood frame wall R-value, shall be 15 high density in existing 2x4 framed walls in remodel work only.

Footnote b, add Exception: Windows used for the installation of glazing for an approved passive solar design.

Amend 2018 IRC N1103.7, Equipment sizing and efficiency rating (Mandatory), by adding:

Furnaces installed in new construction shall be 90% condensing type furnaces. Exception: Replacement furnaces are to be voluntary 90% condensing type furnaces.

CHAPTER 20 BOILERS AND WATER HEATERS

Section M2005 Water Heaters

Amend 2018 IRC M2005.1, General, by adding:

Water heaters shall be capable of being removed without first removing a permanent portion of the building structure or any other appliance.

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CHAPTER 24 FUEL GAS

Section G2406 Appliance Location

Amend 2018 IRC G2406.2, Prohibited locations, by deleting numbers 3 and 4.

Section G2445 Unvented Room Heaters

Amend 2018 IRC Section G2445, Unvented Room Heaters, by deleting in its entirety.

CHAPTER 26 GENERAL PLUMBING REQUIREMENTS

Section P2602 Individual Water Supply and Sewage Disposal

Amend 2018 IRC P2602.1, General, by adding:

Building sanitary drainage piping and systems that connect to private sewage disposal systems shall be approved by Coconino County Environmental Quality prior to installation.

SECTION P2603 STRUCTURAL AND PIPING PROTECTION

Amend 2018 IRC P2603.5.1, Sewer depth, by deleting and replacing with:

Building sewers that connect to private sewage disposal systems shall be approved by Coconino County Environmental Quality. Building sewers that connect to the City of Flagstaff's sewage disposal system shall be not less than twelve (12) inches below grade.

CHAPTER 29 WATER SUPPLY AND DISTRIBUTION

Section P2903 Water Supply System

Amend 2018 IRC Table P2903.2, Maximum Flow Rates and Consumption for Plumbing Fixtures and Fixture Fittings, by revising and adding as follows:

Maximum Flow Rate or Quantity for a Water Closet to 1.3 gallon

Dual-flush water closets: The effective flush volume shall not exceed 1.28 gallons (4.8 liters). The effective flush volume is the average flush volume of two reduced flushes and one full flush. Flush volumes shall be tested in accordance with ASME A112.19.2/CSA B45.1 and ASME A112.19.14.

CHAPTER 31 VENTS

Section P3103 Vent Terminals

Amend 2018 IRC P3103.1.1, Roof termination, as follows:

Replace "6" with "twelve (12)" and delete "or 6 inches (mm) above the anticipated snow accumulation, whichever is greater".

CHAPTER 39 POWER AND LIGHTING DISTRIBUTION

Section E3901 Receptacle Outlets

Amend 2018 IRC E3901.9, Basements, garages and accessory buildings, by adding:

At least one required garage receptacle shall be a 208/240-volt individual branch circuit for purposes of electric vehicle (EV) charging. The service panel or subpanel circuit directory shall provide a 50-ampere minimum dedicated branch circuit and a branch circuit overcurrent device. Electric vehicle supply equipment shall be installed in accordance with 2017 NFPA 70/NEC.

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Exception: Additions and alterations to existing one- or two-family dwellings and townhouses constructed per the IRC are exempt from the EV charging requirement.

APPENDIX M HOME DAY CARE – R-3 OCCUPANCY

Section A101 General

Amend 2018 IRC Appendix M, AM101.1, General, by adding:

AM101.1.1 A Home Occupation Permit issued by the City of Flagstaff is required prior to receiving any building permits for conversions or improvements.

APPENDIX T SOLAR-READY PROVISIONS – DETACHED ONE- AND TWO-FAMILY DWELLINGS AND TOWNHOUSES

Section T101 Scope

Amend 2018 IRC Appendix T, T101.1, General, by deleting and replacing with:

These provisions shall be applicable for new construction.

Section T103 Solar-Ready Zone

Amend 2018 IRC Appendix T, T103.6, Capped roof penetration sleeve, by deleting in its entirety.

Amend 2018 IRC Appendix T, T103.8, Interconnection pathway, by deleting in its entirety.

Amend 2018 IRC Appendix T, T103.9, Electrical service reserved space, by deleting and replacing with:

When feasible, the main electrical service panel shall have a reserved space to allow installation of a dual pole circuit breaker for future solar electric installation and shall be labeled "For Future Solar Electric." The reserved space shall be positioned at the opposite (load) end from the input feeder location or main circuit location.

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CHAPTER 4-04

2018 INTERNATIONAL EXISTING BUILDING CODE

4-04-001-0001 AMENDMENTS, ADDITIONS, AND DELETIONS

The following provisions shall have the effect of either amending, adding to, or deleting from the 2018 International Existing Building Code adopted in Flagstaff City Code, Title 4, Building Regulations, Chapter 4-01, Administrative Enactments, Section 4-01-001-0002, Adoption of Model Codes.

CHAPTER 1 SCOPE AND ADMINISTRATION

Section 105 Permits

Amend 2018 IEBC 105.1, Required, by adding:

Refer to the 2018 Amendments to Flagstaff City Code, Title 4, Building Code to the 2018 International Building Code (IBC) and 2018 and International Residential Code (IRC) for building permit requirements.

Amend 2018 IEBC 105.5, Expiration, by deleting and replacing with:

Refer to the 2018 Amendments to Flagstaff City Code, Title 4, Building Code to the 2018 International Building Code (IBC) and 2018 and International Residential Code (IRC) for the duration of building permits.

Section 112 Board of Appeals

Amend 2018 IEBC 112.1, General, by deleting and replacing with:

In order to hear and decide appeals of orders, decisions or determinations made by the Building Official relative to the application and interpretation of this code, there shall be and is hereby created a Building and Fire Code Board of Appeals per Flagstaff City Code, Title 2, Boards and Commissions.

CHAPTER 3 PROVISIONS FOR ALL COMPLIANCE METHODS

Section 301 Administration

Amend 2018 IEBC 301.5, Compliance with accessibility, by deleting and replacing with:

Accessibility requirements for existing buildings shall comply with the 2017 edition of ICC A117.1.

CHAPTER 4 REPAIRS

Section 408 Plumbing

Amend 2018 IEBC 408.2, Water closet replacement, by deleting and replacing with:

The maximum water consumption flow rates and quantities for all replaced water closets shall be 1.3 gallons per flushing cycle.

Dual-flush water closets: The effective flush volume shall not exceed 1.28 gallons (4.8 liters). The effective flush volume is the average flush volume of two reduced flushes and one full flush. Flush volumes shall be tested in accordance with ASME A112.19.2/CSA B45.1 and ASME A112.19.14.

CHAPTER 12 HISTORIC BUILDINGS

Section 1201 General

Amend 2018 IEBC 1201.2, Report, by adding subsection 1201.2.1, Heritage Preservation Commission:

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1201.2.1, Heritage Preservation Commission. Any changes to a structure in a historic district or to buildings listed on the City of Flagstaff Historic Registry shall be reviewed by the Community Investment Division, Heritage Preservation Officer, and Current Planning Program, Planning & Development Services Section, prior to issuing a building permit. The project may be referred to the Development Review Board and/or the Heritage Preservation Commission for complete staff review by the board members.

DRAFT

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CHAPTER 4-05 2018 INTERNATIONAL MECHANICAL CODE

4-05-001-0001 AMENDMENTS, ADDITIONS, AND DELETIONS

The following provisions shall have the effect of either amending, adding to, or deleting from the 2018 International Mechanical Code (IMC) adopted in Flagstaff City Code, Title 4, Building Regulations, Chapter 4-01, Administrative Enactments, Section 4-01-001-0002, Adoption of Model Codes.

CHAPTER 1 SCOPE AND ADMINISTRATION

Section 106 Permits

Amend 2018 IMC 106.5.2, Fee schedule, by deleting and replacing with:

The fees for all plumbing work shall be in accordance with 2018 IBC 109.2, as adopted and amended by the City of Flagstaff.

Amend 2018 IMC 106.5.3, Fee refunds, by deleting and replacing with:

Refunds shall be in accordance with 2018 IBC 109.6, as adopted and amended by the City of Flagstaff.

Section 108 Violations

Amend 2018 IMC 108.4, Violation penalties, by deleting and replacing with:

Violation penalties shall be in accordance with 2018 IBC 114.4 as adopted and amended by the City of Flagstaff.

Amend 2018 IMC 108.5, Stop work orders, by deleting and replacing with:

Stop work orders shall be in accordance with 2018 IBC Section 115, as adopted and amended by the City of Flagstaff.

Section 109 Means of Appeal

Amend 2018 IMC 109.1, Application for appeal, by deleting and replacing with:

In order to hear and decide appeals of orders, decisions or determinations made by the Building Official relative to the application and interpretation of this code, there shall be and is hereby created a Building and Fire Code Board of Appeals per Flagstaff City Code, Title 2, Boards and Commissions.

CHAPTER 3 GENERAL REGULATIONS

Section 304 Installation

Amend 2018 IMC 304.2, Conflicts, by deleting and replacing with:

Where conflicts between this code and the conditions of the listing or the manufacturer's installation instructions occur, the listing and manufacturer's installation requirements shall apply.

CHAPTER 9 SPECIFIC APPLIANCES, FIREPLACES AND SOLID FUEL-BURNING EQUIPMENT

Section 903 Factory-Built Fireplaces

Amend 2018 IMC 903.3, Unvented gas log heaters, by deleting and replacing with:

An unvented gas log heater shall not be installed at any time unless first approved by the local gas utility company. A signed and dated letter of such approval shall be submitted to the Building Official before a permit can be issued.

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CHAPTER 10 BOILERS, WATER HEATERS AND PRESSURE VESSELS

Section 1002 Water Heaters

Amend 2018 IMC 1002.1, General, by revising the second sentence to read:

Water heaters shall be capable of being removed without first removing a permanent portion of the building structure or any other appliance.

DRAFT

FLAGSTAFF CITY CODE, TITLE 4, BUILDING REGULATIONS

CHAPTER 4-06 2018 INTERNATIONAL PLUMBING CODE

4-06-001-0001 AMENDMENTS, ADDITIONS, AND DELETIONS

The following provisions shall have the effect of either amending, adding to, or deleting from the 2018 International Plumbing Code (IPC) adopted in Flagstaff City Code, Title 4, Building Regulations, Chapter 4-01, Administrative Enactments, Section 4-01-001-0002, Adoption of Model Codes.

CHAPTER 1 SCOPE AND ADMINISTRATION

Section 106 Fees

Amend 2018 IPC 106.6.2, Fee schedule, by deleting and replacing with:

The fees for all plumbing work shall be in accordance with 2018 IBC 109.2, as adopted and amended by the City of Flagstaff.

Amend 2018 IPC 106.6.3, Fee refunds, by deleting and replacing with:

Refunds shall be in accordance with 2018 IBC 109.6, as adopted and amended by the City of Flagstaff.

Section 109 Means of Appeal

Amend 2018 IPC 109.1, Application for appeal, by deleting and replacing with:

In order to hear and decide appeals of orders, decisions or determinations made by the Building Official relative to the application and interpretation of this code, there shall be and is hereby created a Building and Fire Code Board of Appeals per Flagstaff City Code, Title 2, Boards and Commissions.

Amend 2018 IPC Sections 109.2 through 109.7, by deleting in their entirety.

CHAPTER 3 GENERAL REGULATIONS

Section 301 General

Amend 2018 IPC 301.7, Conflicts, by deleting and replacing with:

Where conflicts between this Code and the conditions of the listing or the manufacturer's installation instructions occur, the listing or manufacturer's installation requirements shall apply.

Section 305 Protection of Pipes and Plumbing System Components

Amend 2018 IPC 305.4, Freezing, by revising the last sentence to read:

Exterior water supply piping shall be installed not less than thirty (30) inches below grade.

Amend 2018 IPC 305.4.1, Sewer depth, by deleting and replacing with:

Building sewers that connect to private sewage disposal systems shall be approved by Coconino County Environmental Quality prior to installation. Building sewers that connect to City-provided sewer shall be a minimum of twelve (12) inches below grade.

Section 312 Tests and Inspections

Amend 2018 IPC 312.1, Required tests, by replacing the fourth sentence with:

All plumbing system piping shall be tested with either water or air.

FLAGSTAFF CITY CODE, TITLE 4, BUILDING REGULATIONS

Amend 2018 IPC 312.3, Drainage and vent air test, by deleting the first sentence.

Amend 2018 IPC 312.6, Gravity sewer test, by deleting in its entirety.

Amend 2018 IPC 312.7, Forced sewer test, by deleting in its entirety.

CHAPTER 6 WATER SUPPLY AND DISTRIBUTION

Section 604 Design of Building Water Distribution System

Amend 2018 IPC Table 604.4, Maximum flow rates and consumption for plumbing fixtures and fixture fittings, by revising the following values:

Maximum Flow Rate or Quantity for a Urinal to 1 pint

Maximum Flow Rate or Quantity for a Water Closet to 1.3 gallon

Dual-flush toilets: The effective flush volume shall not exceed 1.28 gallons (4.8 liters). The effective flush volume is the average flush volume of two reduced flushes and one full flush. Flush volumes shall be tested in accordance with ASME A112.19.2/CSA B45.1 and ASME A112.19.14.

CHAPTER 7 SANITARY DRAINAGE

Section 703 Building Sewer

Amend 2018 IPC 703, Building sewer, by adding section 703.7, Building sewer locating means:

703.7 Building Sewer Locating Means. All non-metallic building sewer piping shall be installed with a plastic covered No. 12 AWG Type UF 600V tracer wire taped to the top of the piping with a minimum 10 mil tape. The building sewer tracer wire shall be green in color.

CHAPTER 9 VENTS

Section 903 Vent Terminals

Amend 2018 IPC 903.1, Roof termination, as follows:

Replace "[NUMBER OF INCHES]" with "twelve (12)".

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CHAPTER 4-07 2018 INTERNATIONAL FUEL GAS CODE

4-07-001-0001 AMENDMENTS, ADDITIONS, AND DELETIONS

The following provisions shall have the effect of either amending, adding to, or deleting from the 2018 International Fuel Gas Code (IFGC) adopted in Flagstaff City Code, Title 4, Building Regulations, Chapter 4-01, Administrative Enactments, Section 4-01-001-0002, Adoption of Model Codes.

CHAPTER 1 SCOPE AND ADMINISTRATION

Section 106 Fees

Amend 2018 IFGC 106.6.2, Fee schedule, by deleting and replacing with:

The fees for work shall be in accordance with 2018 IBC 109.2, as adopted and amended by the City of Flagstaff.

Amend 2018 IFGC 106.6.3, Fee refunds, by deleting and replacing with:

Refunds shall be in accordance with 2018 IBC 109.6, as adopted and amended by the City of Flagstaff.

Section 109 Means of Appeal

Amend 2018 IFGC 109.1, Application for appeal, by deleting and replacing with:

In order to hear and decide appeals of orders, decisions or determinations made by the Building Official relative to the application and interpretation of this code, there shall be and is hereby created a Building and Fire Code Board of Appeals per Flagstaff City Code, Title 2, Boards and Commissions.

Amend 2018 IFGC Sections 109.2 through 109.7, by deleting in their entirety.

CHAPTER 3 GENERAL REGULATIONS

Section 303 Appliance Location

Amend 2018 IFGC 303.3, Prohibited locations, by deleting numbers 3 and 4.

CHAPTER 4 GAS PIPING INSTALLATIONS

Section 403 Piping Materials

Amend 2018 IFGC 403.4.3, Copper and copper alloy, by deleting and replacing with:

Copper and brass, threaded copper, brass, and aluminum piping shall not be used for gas piping installations within the City of Flagstaff.

CHAPTER 6 SPECIFIC APPLIANCES

Section 621 Unvented Room Heaters

Amend 2018 IFGC Section 621, Unvented Room Heaters, by deleting in its entirety.

FLAGSTAFF CITY CODE, TITLE 4, BUILDING REGULATIONS

CHAPTER 4-08 2018 INTERNATIONAL ENERGY CONSERVATION CODE

4-08-001-0001 AMENDMENTS, ADDITIONS, AND DELETIONS

The following provisions shall have the effect of either amending, adding to, or deleting from the 2018 International Energy Conservation Code (IECC) adopted in Flagstaff City Code, Title 4, Building Regulations, Chapter 4-01, Administrative Enactments, Section 4-01-001-0002, Adoption of Model Codes.

COMMERCIAL PROVISIONS

CHAPTER 1 SCOPE AND ADMINISTRATION

Section C101 Scope and General Requirements

Amend 2018 IECC, by adding Section C101.2.1, Appendices:

Provisions in the appendices shall not apply unless specifically adopted. The following Appendices are hereby adopted as part of the IECC:

APPENDIX CA - SOLAR-READY ZONE - COMMERCIAL

Section C109 Board of Appeals

Amend 2018 IECC C109.1, General, by deleting and replacing with:

In order to hear and decide appeals of orders, decisions or determinations made by the Building Official relative to the application and interpretation of this code, there shall be and is hereby created a Building and Fire Code Board of Appeals per Flagstaff City Code, Title 2, Boards and Commissions.

Amend 2018 IECC C109.3, Qualifications, by deleting in its entirety.

CHAPTER 2 DEFINITIONS

Section C202 General Definitions

Amend 2018 IECC C202, General definitions, by replacing the following definition with:

RESIDENTIAL BUILDING. For this code, includes detached one- and two-family dwellings and townhouses as well as Group R-2, R-3, and R-4 buildings three stories or less in height above grade plane or concrete podium, and without interior conditioned common entry/exit corridors. Where the building includes accessory common uses and/or commercial spaces, those portions of the building shall comply with the applicable commercial provisions of the IECC.

APPENDIX CA - SOLAR-READY ZONE - COMMERCIAL

Section CA101 Scope

Amend 2018 IECC Appendix CA, CA101.1, General, by deleting and replacing with:

These provisions shall be applicable for new construction.

RESIDENTIAL PROVISIONS

CHAPTER 1 SCOPE AND ADMINISTRATION

Section R101 Scope and General Requirements

Amend 2018 IECC, by adding Section R101.2.1, Appendices.

Provisions in the appendices shall not apply unless specifically adopted. The following Appendices are hereby adopted as part of the IECC:

FLAGSTAFF CITY CODE, TITLE 4, BUILDING REGULATIONS

APPENDIX RA - SOLAR-READY ZONE - RESIDENTIAL

Section R109 Board of Appeals

Amend 2018 IECC R109.1, General, by deleting and replacing with:

In order to hear and decide appeals of orders, decisions or determinations made by the Building Official relative to the application and interpretation of this code, there shall be and is hereby created a Building and Fire Code Board of Appeals per Flagstaff City Code, Title 2, Boards and Commissions.

Amend 2018 IECC R109.3, Qualifications, by deleting in its entirety.

CHAPTER 2 DEFINITIONS

Section R202 General Definitions

Amend 2018 IECC R202, General definitions, by replacing the following definition with:

RESIDENTIAL BUILDING. For this code, includes detached one- and two-family dwellings and townhouses as well as Group R-2, R-3, and R-4 buildings three stories or less in height above grade plane or concrete podium, and without interior conditioned common entry/exit corridors. Where the building includes accessory common uses and/or commercial spaces, those portions of the building shall comply with the applicable commercial provisions of the IECC.

CHAPTER 4 RESIDENTIAL ENERGY EFFICIENCY

Section R402 Building Thermal Envelope

Amend 2018 IECC R402.1.2, Insulation and fenestration criteria, by adding the following to Table R402.1.2 as follows:

Climate Zone 5, Wood frame wall R-value: 15 high density in existing 2x4 framed walls in remodel work only

Footnote b, Exception: Windows used for the installation of glazing for approved passive solar design.

Amend 2018 IECC R403.7, Equipment sizing and efficiency rating (Mandatory), by adding:

Furnaces installed in new construction shall be 90% condensing type furnaces. Exception: Replacement furnaces are to be voluntary 90% condensing type furnaces.

APPENDIX RA SOLAR-READY PROVISIONS - DETACHED ONE-AND TWO-FAMILY DWELLING AND TOWNHOUSES

Section RA101 Scope

Amend 2018 IECC Appendix RA, RA101.1, General, by deleting and replacing with:

These provisions shall be applicable for new construction.

Section RA103 Solar-Ready Zone

Amend 2018 IECC Appendix RA, RA103.6, Interconnection pathway, by deleting in its entirety.

Amend 2018 IECC Appendix RA, RA103.7, Electrical service reserved space, by deleting and replacing with:

When feasible, the main electrical service panel shall have a reserved space to allow installation of a dual pole circuit breaker for future solar electric installation and shall be labeled "For Future Solar Electric." The

FLAGSTAFF CITY CODE, TITLE 4, BUILDING REGULATIONS

reserved space shall be positioned at the opposite (load) end from the input feeder location or main circuit location.

CHAPTER 4-09 2018 INTERNATIONAL SOLAR ENERGY PROVISIONS

4-09-001-0001 AMENDMENTS, ADDITIONS, AND DELETIONS

The following provisions shall have the effect of either amending, adding to, or deleting from the 2018 International Solar Energy Provisions (ISEP) adopted in Flagstaff City Code, Title 4, Building Regulations, Chapter 4-01, Administrative Enactments, Section 4-01-001-0002, Adoption of Model Codes.

The 2018 ISEP is a compilation of all solar energy provisions found throughout the 2018 International Codes (IBC, IRC, IECC, IMC, IPC, IFC, and ISPS). As such, each code section contained within this document is also identified by its corresponding section number from the original International Code source, as detailed in the Letter Designations located in the Preface of the ISEP. Amendments to any section from the source codes, including the 2018 International Fire Code (IFC) as adopted under Flagstaff City Code, Title 5, shall apply to the 2018 ISEP.

FLAGSTAFF CITY CODE, TITLE 4, BUILDING REGULATIONS

CHAPTER 4-10 2018 INTERNATIONAL SWIMMING POOL AND SPA CODE

4-10-001-0001 AMENDMENTS, ADDITIONS, AND DELETIONS

The following provisions shall have the effect of either amending, adding to, or deleting from the 2018 International Swimming Pool and Spa Code (ISPSC) adopted in Flagstaff City Code, Title 4, Building Regulations, Chapter 4-01, Administrative Enactments, Section 4-01-001-0002, Adoption of Model Codes.

CHAPTER 1 SCOPE AND ADMINISTRATION

Section 108 Means of Appeal

Amend 2018 ISPSC 108.1, Application for appeal, by deleting and replacing with:

In order to hear and decide appeals of orders, decisions or determinations made by the Building Official relative to the application and interpretation of this code, there shall be and is hereby created a Building and Fire Code Board of Appeals per Flagstaff City Code, Title 2, Boards and Commissions.

Amend 2018 ISPSC Sections 108.2 through 108.7, by deleting in their entirety.

CHAPTER 2 DEFINITIONS

Section 202 Definitions

Amend 2018 ISPSC Section 202, Definitions, by adding:

RESIDENTIAL SWIMMING POOL (RESIDENTIAL POOL). A pool intended for use that is accessory to a residential setting and available only to the household and its guests including any structure intended for swimming or recreational bathing that contains water over eighteen (18) inches in depth. This includes in-ground, above ground, and on-ground swimming pools, hot tubs, spas, and fixed in place wading pools. Other pools shall be considered to be public pools for purposes of this code.

CHAPTER 3 GENERAL COMPLIANCE

Section 305 Barrier Requirements

Amend 2018 ISPSC 305.2.1, Barrier height and clearances, by revising as follows:

1. The top of the barrier shall be not less than sixty (60) inches above grade where measured on the side of the barrier that faces away from the pool or spa. Such height shall exist around the entire perimeter of the barrier and for a distance of three (3) feet measured horizontally from the outside of the required barrier.

FLAGSTAFF CITY CODE, TITLE 4, BUILDING REGULATIONS

CHAPTER 4-11 NATIONAL ELECTRICAL CODE

4-11-001-0001 AMENDMENTS, ADDITIONS, AND DELETIONS

The following provisions shall have the effect of either amending, adding to, or deleting from the National Electrical Code (NEC), 2017 Edition, adopted in Flagstaff City Code, Title 4, Building Regulations, Chapter 4-01, Administrative Enactments, Section 4-01-001-0002, Adoption of Model Codes.

CHAPTER 1 GENERAL

Article 110 Requirements for Electrical Installations

Part I General

Amend 2017 NEC Article 110.5, Conductors, to read:

Conductors used to carry current shall be of copper only. Where the conductor material is not specified, the material and the sizes given in this Code shall apply to copper conductors. The use of aluminum wire shall be approved for feeders and service entrance conductors only and shall not be used for branch circuit wiring.

Amend 2017 NEC Article 110.7, Wiring integrity, by adding:

All equipment rated at 1000 amperes or more shall be tested for insulation breakdown, mechanical integrity, and workmanship prior to the equipment being energized. A certified high potential voltage test (hi-pot) shall be performed and a certificate issued to the Building Official. This test shall be performed in the presence of a Building Inspector and conducted by a testing firm approved by the Building Official.

Said test shall be performed for a period of one (1) minute, the application of a 60 hertz alternating potential of 1000 volts plus twice the rated phase to phase voltage of the equipment.

This test shall be performed between all phases to ground, phase to phase, and neutral if isolated.

CHAPTER 2 WIRING AND PROTECTION

Article 210 Branch Circuits

Part I General Provisions

Amend 2017 NEC Article 210.5, Identification for Branch Circuits, by adding:

(D) **Color Code.** Where 15, 20, or 30 ampere branch circuits requiring a neutral are installed in raceways or cable assemblies, the conductor of branch circuits connected to the same system shall conform to the following color code:

Volts	Phase	System	Phase A	Phase B	Phase C	Neutral
120/208	3	Wye	Black	Red	Blue	White
120/240	3	Delta	Black	Orange	Blue	White
277/480	3	Wye	Brown	Orange	Yellow	Gray

Article 250 Grounding and Bonding

Part II System Grounding

FLAGSTAFF CITY CODE, TITLE 4, BUILDING REGULATIONS

Amend 2017 NEC Article 250.30, Grounding Separately Derived Alternating-Current Systems, (A) Grounded Systems, (2) Supply-Side Bonding Jumper, by adding:

(c) All new building construction shall have a one-piece concrete-encased electrode and electrode conductor (Ufer ground), a minimum twenty (20) feet length in the footing, sized from the following table:

0-200 ampere service: 1 piece #4 copper (electrode and electrode conductor)

201-400 ampere service: 1 piece 1/0 copper (electrode and electrode conductor)

401-800 ampere service: 1 piece 2/0 copper (electrode and electrode conductor)

Larger than 800 ampere service: 1 piece 3/0 copper (electrode and electrode conductor)

Where the Ufer has been lost, damaged, or cannot be located, a ground ring or modification of the same consisting of thirty (30) feet of #2 bare copper wire, buried a minimum of thirty (30) inches deep in a trench, or a plate electrode per Article 250.53 (H) shall be required in lieu of a concrete-encased electrode.

2013 AMENDMENTS TO FLAGSTAFF CITY CODE, TITLE 4, BUILDING CODE

TITLE 4 BUILDING REGULATIONS

CHAPTERS:

- [4-01](#) ADMINISTRATIVE ENACTMENTS (Page 2)**
- [4-02](#) INTERNATIONAL RESIDENTIAL CODE (IRC), 2012 EDITION, AMENDMENTS, ADDITIONS, AND DELETIONS (Page 12)**
- [4-03](#) INTERNATIONAL BUILDING CODE (IBC), 2012 EDITION, AMENDMENTS, ADDITIONS, AND DELETIONS (Page 33)**
- [4-04](#) INTERNATIONAL PLUMBING CODE (IPC), 2012 EDITION, AMENDMENTS, ADDITIONS, AND DELETIONS (Page 39)**
- [4-05](#) NATIONAL ELECTRICAL CODE (NEC), 2011 EDITION, AMENDMENTS, ADDITIONS, AND DELETIONS (Page 42)**
- [4-06](#) INTERNATIONAL MECHANICAL CODE (IMC), 2012 EDITION, AMENDMENTS, ADDITIONS, AND DELETIONS (Page 44)**
- [4-07](#) INTERNATIONAL FUEL GAS CODE (IFGC), 2012 EDITION, AMENDMENTS, ADDITIONS, AND DELETIONS (Page 46)**
- [4-08](#) INTERNATIONAL EXISTING BUILDING CODE (IEBC), 2012 EDITION, AMENDMENTS, ADDITIONS, AND DELETIONS (Page 48)**
- [4-09](#) INTERNATIONAL ENERGY CONSERVATION CODE (IECC), 2009 EDITION, AMENDMENTS, ADDITIONS, AND DELETIONS (Page 49)**

2013 AMENDMENTS TO FLAGSTAFF CITY CODE, TITLE 4, BUILDING CODE

CHAPTER 4-01 ADMINISTRATIVE ENACTMENTS

The following applies to Chapters 4-01 through 4-09

SECTIONS:

4-01-001-0001 DEFINITIONS

4-01-001-0002 ADOPTION OF 2012 INTERNATIONAL BUILDING, RESIDENTIAL, AND PLUMBING CODES, WITH AMENDMENTS, ADDITIONS, AND DELETIONS THERETO; 2011 NATIONAL ELECTRICAL CODE, WITH AMENDMENTS, ADDITIONS, AND DELETIONS THERETO; 2012 INTERNATIONAL MECHANICAL CODE, WITH AMENDMENTS, ADDITIONS, AND DELETIONS THERETO; 2012 INTERNATIONAL FUEL GAS CODE WITH AMENDMENTS, ADDITIONS, AND DELETIONS THERETO; 2012 INTERNATIONAL EXISTING BUILDING CODE WITH AMENDMENTS, ADDITIONS, AND DELETIONS THERETO; 2006 INTERNATIONAL ENERGY CONSERVATION CODE WITH AMENDMENTS, ADDITIONS, AND DELETIONS THERETO; ICC A117.1-2009 Accessible And Usable Building And Facilities; 1997 UNIFORM HOUSING CODE WITH AMENDMENTS, ADDITIONS, AND DELETIONS THERETO; 1997 UNIFORM ADMINISTRATIVE CODE, WITH AMENDMENTS, ADDITIONS, AND DELETIONS THERETO; AND 1997 UNIFORM CODE FOR THE ABATEMENT OF DANGEROUS BUILDINGS, WITH AMENDMENTS, ADDITIONS, AND DELETIONS THERETO.

4-01-001-0003 SAVING CLAUSE

4-01-001-0004 VIOLATION AND PENALTIES

4-01-001-0005 AMENDMENTS, ADDITIONS AND DELETIONS

4-01-001-0001 Definitions

As used in this City of Flagstaff 2013 Building Code Amendments and all of the referenced herein adopted International Codes, the following terms shall have the meaning herein prescribed:

- A. Wherever the word "Municipality" or "[Name of Jurisdiction]" is used, it shall be mean the City of Flagstaff.
- B. Wherever the term "Department of Building Safety" is used, it shall mean "Development Services Division."
- C. Wherever the term "Corporation Counsel" is used in this Chapter, it shall mean the Attorney for the City of Flagstaff (Ordinance 587:8-14-62).
- D. Wherever the term "Administrative Authority" is used in conjunction with publicly provided utilities (natural gas, electricity, internet and broad band service, telephone, and cable television), it shall mean the current contract company providing the respective service. Wherever the term "Administrative Authority" is used in conjunction with publicly provided utilities or permits (water, sewer, storm water management and/or building permits), it shall mean the City of Flagstaff.

2013 AMENDMENTS TO FLAGSTAFF CITY CODE, TITLE 4, BUILDING CODE

4-01-001-0002 Adoption of 2012 International Building, Residential, and Plumbing Codes, with amendments, additions, and deletions thereto; 2011 National Electrical Code, with amendments, additions, and deletions thereto;

There are hereby adopted by the City Council of the City of Flagstaff for the purposes of establishing rules and regulations for the construction, alteration, removal, demolition, equipment, use and occupancy, alteration, removal, maintenance of buildings and structures, including permits and penalties, those certain International Codes known and referred to with particularity as the International Building Code (IBC), 2012 Edition, providing for amendments, additions and deletions thereto and International Residential Code (IRC), 2012 Edition, providing for amendments, additions and deletions thereto; International Plumbing Code (IPC), 2012 Edition, providing for amendments, additions and deletions thereto, the 2011 National Electrical Code, providing for amendments, additions and deletions thereto; International Mechanical Code, 2012 Edition, providing for amendments, additions and deletions thereto; International Fuel Gas Code, 2012 Edition, providing for amendments, additions and deletions thereto; International Existing Building Code, 2012 Edition, providing for amendments, additions and deletions thereto; International Energy Conservation Code, 2009 Edition, providing for amendments, additions, and deletions thereof; ICC A17.1-2009, Accessible And Usable Building And Facilities; Uniform Housing Code, 1997 Edition, Uniform Administrative Code, 1997 Edition, and Uniform Code for the Abatement of Dangerous Buildings, 1997 Edition, three (3) copies of which are on file in the office of the City Clerk of the City of Flagstaff, and the same made part hereof by this reference as if fully and completely herein set forth. The provisions of the aforesated Codes, 2012 editions, shall be controlling for construction within the corporate limits of the City of Flagstaff.

4-01-001-0003 SAVING CLAUSE

Nothing in this Chapter or in the International Building Codes hereby adopted shall be construed to affect any suit or proceeding now pending in any court, or any rights acquired, or liability incurred, or any cause or causes of action acquired or existing, under any act or ordinances replaced hereby. Nor shall any right or remedy of any character be lost, impaired, or affected by this Chapter.

4-01-001-0004 VIOLATION AND PENALTIES

- A. Violations. It shall be unlawful for any person, firm or corporation to erect, construct, enlarge, alter, repair, move, improve, remove, convert, demolish, equip, use or maintain any building or permit the same to be done in violation of this Code.
- B. Penalties. Any person, firm, or corporation violating any provision of this Code shall be deemed guilty of a misdemeanor, and upon conviction thereof, shall be punishable by a fine and/or imprisonment set forth by the governing laws of the jurisdiction. Each separate day or any portion thereof, during which any violation of this Code occurs or continues, shall be deemed to constitute a separate offense.

4-01-001-0005 Amendments, Additions, and Deletions

2013 AMENDMENTS TO FLAGSTAFF CITY CODE, TITLE 4, BUILDING CODE

The following provisions shall have the effect of either amending, adding to, or deleting from the International Codes 2012 Editions and the National Electrical Code, 2011 Edition.

(Amended, Ord. 2009-06, 07/18/2009; Amended Ord. No. 2011-12, (July 19, 2011))

CHAPTER 1, ADMINISTRATION

Amend Section R103.1 IRC and 103.1 IBC to read:

The Development Services Section, Building Safety Program, is appointed as the regulating office and the Building Official is known as the code official.

(Amended Ord. No. 2011-12, (July 19, 2011))

Revise the amendments to Sections R104.7, 104.7, and 104.8 by striking the third paragraph:

The Building Official shall keep comprehensive records of applications or permits issued, or certificates issued or inspections made, or reports rendered and of notices of orders issued.

All such records shall be open to public inspection for good and sufficient reasons at the stated office hours but shall not be removed from the office of the Building Official without his written consent. All records are kept in both hard copy and electronic format. The electronic format information may be requested on a "walk-in" basis and reviewed during normal working hours; copies or inspection of original documentation requires written notice and reasonable amount of time for Staff to collect the required records from an off-site warehouse location. Written requests will go through the City Clerk's office for processing. (Amended Ord. No. 2011-12, (July 19, 2011))

Amend Table R301.2 (1) "Climatic and Geographic Design Criteria" as follows:

This information may be used by Design Professionals in lieu of the tables provided in Chapter 16 of the International Building Code (IBC), 2012 Edition.

Ground Snow Load (where accounting has been given for factored snow loads as given in ASCE 7, Chapter 7. No reduction for slopes less than 45 degrees without providing engineering and/or approval by the Building Official)	50 pounds per square foot
Wind Speed:	90 miles per hour
Wind Exposure Category:	"B"
Seismic Design Category:	"C"
Weathering:	Severe
Frost line depth:	30 inches
Termite:	Moderate to Heavy

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Decay: Moderate
Rain fall - 100 year 2.5 inches per hour The
Winter Design Temperature: 4 degrees (F) Insurance Program
Ice Shield Under-layment Req'd: Yes
Flood Hazards: 1-19-83; 9-18-90*
Air Freezing Index: 1014
Mean Annual Temperature: 45.4 degrees (F)
Climate Zone (IECC, Table 301.1): Zone 5 (Ame
nded Ord.
No. 2011-12, (July 19, 2011))

Amend Sections R105.2 and 105.2, Work Exempt from Permits, by adding:

Garden walls, fences less than 6 feet in height, decks/patios less than 30" above finished grade and all shed structures under 200 square feet will require a Minor Improvement permit as approved under COF Ordinance 2006-12

(Amended Ord. No. 2011-12, (July 19, 2011))

Delete Sections R105.5 IRC and 105.5 IBC, Expiration, and replace with:

Every residential permit issued shall become invalid unless the work authorized by such permit is completed within one year (365 days) from the issuance date of the building permit. The Building Official is authorized to grant, when request for extension is received in writing, one extension not to exceed 180 days. The extension shall demonstrate cause such as financial, weather delays, material delivery, etc. The permit may be extended for an additional year (365 days) by paying one half the original permit fee (not including the plan check fee), thereby allowing a maximum time of completing the project to 30 months. Failure to obtain a certificate of occupancy within 30 months shall result in a report being recorded with the Coconino County Recorder's office for incomplete work or no final inspection report of the project. All residential "over-the-counter" permits for plumbing, mechanical, electrical and re-roofing shall be valid for a maximum period of 180 days.

All commercial construction permits for new, remodels, additions, and alterations shall be valid for a maximum period of 720 days. One extension shall be granted for an additional 360 days when requested in writing and justifiable cause is demonstrated. After the one time extension has expired, the next additional extension will require the applicant to pay one-half the permit fee for an additional 360 day extension. Permits not passing final inspection over 1440 days will be expired and the applicant must submit for a new permit and pay all associated fees. All commercial "over-the-counter" permits for plumbing, mechanical, electrical and re-roofing shall be valid for a maximum period of 180 days.

(Amended Ord. No. 2011-12, (July 19, 2011))

Amend Section 105.2, Electrical, by adding:

Approved portable equipment used in conjunction with special events in public locations (parks, parking lots, public owned land, et cetera) of

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25 kw or greater will have an over-the-counter electrical permit issued and a licensed electrical contractor for installation or set up.

The issuance of an electrical permit shall not be construed as an approval by the electrical inspector of any diagrams, drawings, specifications, or details of such contemplated work insofar as the same or any portion thereof is in conflict with this Chapter or any other rules or regulations governing electric installations in the City of Flagstaff. The holder of an electrical permit shall not do or perform any work other than that designated in the application for said permit without first notifying the electrical inspector and paying the additional fee therefore. No work shall be permitted at any location other than that designated by the permit. The electrical inspector must be given immediate notice when an installation is ready for either rough or final inspection.

(Amended Ord. No. 2011-12, (July 19, 2011))

Amend Section 105 IBC by adding Section 105.8, Temporary Permit:

Section 105.8. Temporary Permit. Permits may be issued by the Building Official for the use of certain classes of temporary open wiring such as for carnivals, fairs, demonstrations, evangelistic meetings, town parties, auction sales, and others. Such permits shall be granted for a period of two (2) weeks only, with a possible extension of one (1) week if the circumstances are justified in writing to the Building Official. No such temporary permits shall be granted in succession at the same location, and under no circumstances shall any person connect or put into service any temporary wiring until a permit has been obtained.

Temporary permits shall also be granted for the use of temporary wiring for lights and power on buildings under construction. Such permits are void automatically upon cessation of active construction or when, in the judgment of the Building Official, such wiring becomes hazardous. Provisions of Article 525 of the National Electrical Code (NEC), 2011 Edition shall be followed with respect to temporary wiring.

(Amended Ord. No. 2011-12, (July 19, 2011))

Amend Section R106.1.1, Information on Construction Documents, by deleting the first sentence and replace with:

Construction documents shall be drawn upon suitable material, drafting paper, vellum, etc. and shall be a maximum size of 24" x 36", size D paper. The minimum size of drawings that have the minimum required drawings (site plan, foundation plan, floor plans for each floor, elevations, framing plans, roof & floor manufactured layout plans, critical sections, and details will be 18" x 24"). Floor framing, foundation, roof framing and floor plans must be drafted to the same scale, i.e., $\frac{3}{4}$ "=1'-0". The minimum size for amended cut-sheets or details will be 8-1/2" x 11" and will not exceed the maximum sheet size. Larger sized drawings must be approved by the Building Official and justification established for why drawings can't be presented on the smaller size sheets. [It is expected that larger commercial projects

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will fall into this exception]. The written scope or description of the work may be provided on the building permit application form as long as it describes accurately the work to be performed.

All structural elements (i.e., posts and beams) shall be on the related plan sheet(s) which corresponds to the work being proposed.

Embedded anchors shall be on the foundation plan. Post bases/caps shall be on the framing plan or shown on specific details for the assembly.

Each floor shall have its own framing plan. First floor framing will not be superimposed on second floor framing or roof framing plans as an example.

(Amended Ord. No. 2011-12, (July 19, 2011))

Amend Section 106.1 IBC, Submittal Documents, by adding:

Residential, single family detached, structures are exempt from the requirements for a Design Professional under Arizona Revised Statutes (ARS 32-121 et. seq.) unless circumstances dictate the need for professional design submittal. Duplexes and triplex units which do not exceed 3,000 square feet, two stories or a total occupant load of 20, may also be designed by a non-registrant as long as the unit(s) has/have only one owner.

Sub-assemblies, such as roof trusses or manufactured floor beams that indicate all imposed loading may be submitted without the "stamp" of an Arizona certified or registered Design Professional.

Any retaining walls having any imposed surcharges from adjacent structural elements or unbalanced loading that exceed four (4) feet (1224 mm), shall be designed by an Arizona certified or registered Design Professional and shall be submitted at the time of permit application.

Pursuant to Arizona Revised Statutes § 32-121 et.seq. governing the regulation of Design Professionals (i.e. architects and engineers), all commercial occupancies for new construction, additions, alterations or repairs within the City of Flagstaff shall be prepared by an Arizona certified or registered Design Professional in good standing when:

1. The total square footage of any building exceeds 3,000 square feet, or
2. The total occupancy of the building exceeds 20 people, or
3. Any structural member required for the project exceeds twenty feet (20') in length.

The certified or registered Design Professional of Record must provide his/her "stamp" upon all working drawings. Drawings not prepared by the Design Professional of Record may be annotated as such, but the "stamp" shall be affixed to all the drawings in the construction working drawings set to indicate that coordination of the total project has been done by the Design Professional of Record.

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A design professional is required for electrical service entrance sections of 600 amps and greater.

(Amended Ord. No. 2011-12, (July 19, 2011))

Amend Sections 108.4 and R108.4 by adding:

Any person who commences any work on a building, structure, electrical, gas, mechanical, or plumbing system before obtaining the necessary permits shall be subject to an investigation fee of \$94.00 or twice the permit fee, whichever is greater.

(Amended Ord. No. 2011-12, (July 19, 2011))

Amend Sections R108.5 IRC and 108.5 IBC, Related Fees, by adding:

The fee schedule shall be based upon the 1997 Uniform Administrative Code, Table 3D, and shall be annually reviewed and the revised fees published by the Building Safety Program, Development Services Section. Valuation fees for commercial work shall be annually reviewed in accordance with the International Code Council Building Safety Journal Fee structure. Residential fee valuation shall be subject to approval for increases by the City of Flagstaff Council based upon the recommendation of the Building Official and shall be published for public review.

(Amended Ord. No. 2011-12, (July 19, 2011))

Amend Sections R108.6 IRC and 108.6 IBC, Refunds, by adding:

The applicant may receive up to 80% refund for the total building permit fee if no work has begun and no inspections have been performed. No refund of the plan review fee is authorized after the permit has been issued. The refund of a plan review fee is also limited to 80%, assuming that no review has been performed. The Building Official shall determine, based upon work done, how much of fees paid are actually refunded. There shall be no refund of any required deposit once the administrative routing and plan review process has begun.

(Amended Ord. No. 2011-12, (July 19, 2011))

Add Sections R108.7 IRC and 108.7 IBC, Re-Inspection Fee(s) as follows:

Re-inspection fees may be assessed for each inspection or re-inspection when the portion of work for which the inspection was scheduled is not complete or when corrections from a previous inspection are not made. Other events which may require the imposition of a re-inspection fee are: failure to have the inspection record on the job site when the inspector arrives; the approved plans not on the job site for the inspector to review; and failure to provide access to the job site or area to be reviewed by the inspector. Appeals for such fees are made to the Building and Safety Manager. To obtain a re-inspection after the inspector has left notice that a fee must be assessed; the applicant must pay a \$94.00 fee.

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(Amended Ord. No. 2011-12, (July 19, 2011))

Amend Sections R110.4 IRC and 110.3 IBC, Temporary Occupancy, by adding.

Temporary Certificate of Occupancies for residential construction (detached single family dwellings and duplexes) is not authorized.

Exceptions: (1) When a driveway approach cannot be poured due to weather, then the Building Official can approve a temporary Certificate of Occupancy after the applicant has posted a bond with the City of Flagstaff; (2) If the structure meets all the requirements for habitable space and sanitation, then a Certificate of Occupancy will be granted. Any unfinished items (i.e. extra bonus rooms, basement finishing, etc.) will be annotated in the inspection record as "not inspected" at the time of Certificate of Occupancy issuance. Applicants moving into a dwelling prior to receiving a Certificate of Occupancy may be evicted as the property is posted "NO OCCUPANCY" by the building inspector or Building Official.

Construction Hours:

Refer to Ordinance 2004-21 of the City Code, Chapter 6-08, Noise Control, Section 6-08-001-0002 for time frames on noise restrictions.

(Amended Ord. No. 2011-12, (July 19, 2011))

Amend Section R112 of the IRC and Section 112 of the IBC, Board of Appeals, by deleting the Sections in their entirety and replacing with:

Board of Appeals, Refer to Ordinance 2011-31 for establishment and requirements of the Board of Appeals.

CHAPTERS 2 OF IRC AND IBC, DEFINITIONS

Amend IBC Section 202 by adding the following definitions:

ACCESSORY DWELLING UNITS. An Accessory Dwelling Unit (ADU) may be either attached or detached and is secondary to the primary residence. The full definitions and application of constructing an ADU is covered under COF Ordinance 2007-20, adopted on 20 March 2007. The ADU is limited in size to be not less than 300 square feet and not greater than 500 square feet in size on lots less than one acre. For lots one acre and larger, the size is limited to 800 square feet maximum. The ADU shall provide complete independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking and sanitation.

ACCESSORY ENERGY SYSTEMS. An accessory energy system will include wind turbines, PV solar, thermal solar, geo-thermal, bio-mass and other technologies that provide heating, cooling or electrical energy. The systems will be subject to a building permit and limited by zoning ordinances for visual, design, height and setback requirements.

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CITY shall mean the City of Flagstaff.

CONDOMINIUMS. Condominiums are defined in the International Building Code, 2012 Edition as a R-2 occupancy and will not be reviewed using the 2012 IRC. Condominiums are a collection of individually owned parcels or individual units within a common structure, combined with a joint ownership of commonly used property (sidewalks, hallways, stairs, etc.). The condominium is defined as the ownership of air-space with no ground attached.

INSPECTION is an examination by which a qualified person conducts an investigation of a completed trade, such as framing, electrical, plumbing or mechanical to assure compliance with adopted minimum codes, or to investigate sub-standard housing as defined in the Uniform Housing code, or investigate dangerous conditions as defined per the Uniform Code for the Abatement of Dangerous Buildings.

LADDER BACKING shall mean or refer to wood construction used at perpendicular or angular intersections of non-load bearing walls between stud bays.

STOCKPILING shall mean the same as fill, except that it is assumed to be loose un-compacted material that is placed on a site for a temporary period of time. Stockpiling shall require a grading permit when it exceeds 50 cubic yards and shall not remain on the site for more than six (6) months without written permission from the Building Official or the City Engineer.

TEMPORARY shall mean a period not to exceed six (6) months.

TOWNHOUSES. Attached dwelling units with a legally described property line between units (two or more units; shall be reviewed using the International Residential Code, 2012 Edition, unless approved by the Building Official to be reviewed using the International Building Code, 2012 Edition. Developers must maintain a five (5) foot clearance on townhouse end units between the property line and the face of the structure to allow for openings in the side walls of the individual units. Exceptions would be a recording of a "five (5) foot no-build easement on the Final Plat" or the unit is adjacent to a public right-of-way.

USABLE SPACE. Any space which can be either occupied, used for storage of materials and/or service area which houses mechanical equipment. The space may or may not have environmental conditioning. The usable space will include access corridors, utility closets, mezzanines, basements, crawl space storage, attic areas rated for either storage or floor loading, vestibules, and/or storage spaces.

(Amended, Ord. 2009-06, 07/18/2009) (Amended Ord. No. 2011-12, (July 19, 2011)

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CHAPTER 4-02

INTERNATIONAL RESIDENTIAL CODE

Sections:

4-02-001-0001 AMENDMENTS, ADDITIONS, AND DELETIONS

4-02-001-0001 Amendments, Additions, and Deletions

The following provisions shall have the effect of either amending, adding to, or deleting from the International Residential Code adopted in Flagstaff City Code, Title 4, Building Regulations, Chapter 4-01, Administrative Enactments, Section 4-01-001-0002, Adoption.

CHAPTER 3, IRC, BUILDING PLANNING

Revise the amendment to Section R325, Manufactured Housing Design Requirements, as follows:

All new manufactured housing (housing classified as modular, factory built or manufactured house) installed within the City of Flagstaff will be designed to meet HUD minimum standards. The City of Flagstaff enforces a 40 pounds per square foot roof snow load for site built construction. HUD standards for snow winter areas in Arizona is not consistent with local conditions and owners should be aware of the differences.

For "used" manufactured housing or "resale"/relocated manufactured housing being brought into the City of Flagstaff, the following applies. As per direction from the State of Arizona, Office of Manufactured Housing, A.R.S. Title 41, specifically requires that all manufactured housing units be certified to meet the minimum standards of the United States Department of Housing and Urban Development and are to be designed in accordance with consistent State of Arizona Standards for manufactured homes and related industries. An applicant requesting an installation permit and inspection will be required to provide proof to the Building Official of the current State certification or re-certification of the unit.

Amend Section R309.5 Fire Sprinklers by deleting entire section.

(Amended, Ord. 2009-06, 07/18/2009) (Amended Ord. No. 2011-12, (July 19, 2011)

CHAPTER 4, IRC, FOUNDATIONS

Revise the amendment to Section Amend R401.4.1 as follows:

All new residential subdivisions require a geotechnical soils report be prepared with foundation recommendations. In established areas of the City of Flagstaff, "in-fill" or vacant lots in subdivisions established prior to 1996, the designer may use 1500 pounds per square foot. Where the Building

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Official determines that in-place soils with an allowable bearing capacity of less than 1500 pounds per square foot (psf) are likely to be present at the site, then allowable bearing capacity shall be determined by a geotechnical investigation at the expense of the permit applicant.

(Amended, Ord. 2009-06, 07/18/2009) (Amended Ord. No. 2011-12, (July 19, 2011))

Amend R403.1 by adding:

All footings located less than 18 inches (457 mm) below existing grade to be air entrained, 3,500 psi concrete (severe weather), and pinned to rock at intervals specified for foundation wall vertical reinforcements or as specified by the Arizona design professional.

Revise the amendment to R403.1.1 by deleting the following language:

Spread footings shall be at least 8 inches (204 mm) in thickness. Footing projections, *P*, shall be at least 4 inches (102 mm) and shall not exceed the thickness of the footing.

(Amended, Ord. 2009-06, 07/18/2009) (Amended Ord. No. 2011-12, (July 19, 2011))

Amend R403.1.2 and R403.1.3 by adding:

Add Seismic "C" category to both sections at all seismic D1 and D2 locations.

Amend R403.1.3 by deleting the exception.

Amend Table R403.1 by changing:

All references to 1,500 and 2,000 psf Load Bearing columns shall be changed from 12 inch (305 mm) and 15 inch (383 mm) minimum width of concrete or masonry footings to 16 inch (408 mm) minimum width for one and two story convention light-frame construction and one story under 4-inch brick veneer and 8-inch solid or fully grouted masonry structures.

Delete R403.1.3.1 in its entirety and add the following language to the replacement amendment:

Foundations with stem-walls shall be provided with a minimum of one No. 4 bar at the top of the wall and two No. 4 bar at the bottom of the footings equally spaced.

Exception: Footing designs without reinforcing steel must be "sealed" by a certified or registered Design Professional.

Delete Section R403.3 in its entirety.

Amend R404.1.1; R404.1.2; R404.1.4, R404.1.8 by adding:

Add Seismic Design Category "C" to all references of D1 and D2.

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Amend R404.1.4, Number 1 by deleting "in the upper 12 inches of the wall" and adding:

1. Minimum reinforcement shall consist of one No. 4 horizontal rebar located at top of wall not more than 5 inches (128 mm) below the finished concrete and at the top course of concrete masonry unit walls within close proximity to the anchor bolts.

Amend R404.1.4, second paragraph by changing:

Change the vertical reinforcement bar reference from #3 rebar to #4 rebar.

Amend R407.3 Exception by deleting:

Delete Seismic Design Category "C" from this exception.

CHAPTER 6, IRC, WALL CONSTRUCTION

Amend R602.5 by adding:

Ladder backing shall be spaced a maximum 8 inches (204 mm) on center.

(Amended, Ord. 2009-06, 07/18/2009) (Amended Ord. No. 2011-12, (July 19, 2011))

CHAPTER 9, IRC, ROOF ASSEMBLIES

Revise the amendment to Section R904.2 as follows:

All roofing materials used must be a class "A" or "B" and rolled roofing is to be a Class A or B material and shall be a self-adhering, polymer modified bitumen material.

(Amended Ord. No. 2011-12, (July 19, 2011))

Delete Sections R905.7 and R905.8 in their entirety.

CHAPTER 11, IRC, ENERGY EFFICIENCY

Amend Section 1102.1 by adding:

Section N1102.1.1. Insulation values in 2x6 wall construction will remain the same at R-19. Insulation values in 2x4 wall construction will remain at R-15 (high density). Construction using Structural Insulated Panels (SIPS) and/or straw bail in-fill methods will be a minimum of R-21 (industry standards often show results of R-30 to R-45 depending upon materials and thickness of the wall).

(Amended Ord. No. 2011-12, (July 19, 2011))

Amend Section N1102.1.2 by adding:

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Section N1102.1.2.1. All new construction and replacement windows to have National Fenestration Rating Council (NFRC) total unit U-factor of 0.45 or less. Windows shall also be low-E where practical (not recommended for southern exposures) or not being used for solar heat gain to fuel a solar massing device.

(Amended Ord. No. 2011-12, (July 19, 2011))

Amend Section N1103 by adding:

Section N1103.1 Furnaces: All furnaces installed in new construction shall be 90% condensing type furnaces.

Exception: Replacement furnaces are to be voluntary 90% condensing type furnaces.

(Amended Ord. No. 2011-12, (July 19, 2011))

(Amended Ord. No. 2011-12, (July 19, 2011))

Amend Chapter 11 by adding Section N1105 Dual Plumbing

Section N1105 Dual Plumbing. All new residential single family detached units are "voluntarily" requested to install the piping only for dual plumbed for "gray water" disposal and conservation efforts. Access for future valving must be provided. The initial installation will be connected to sanitary sewer. The piping shall be installed in accordance Chapter 31, Gray Water Recycling Systems, of the International Plumbing Code, 2009 Edition, and the regulations established by ADEQ. Reference Type 1 General Permit Best Management Practices for the 13 points of using gray water, at www.adeq.state.az.us or call at 1-800-234-5677.)

(Amended, Ord. 2009-06, 07/18/2009) (Amended Ord. No. 2011-12, (July 19, 2011))

CHAPTER 13 IRC, GENERAL MECHANICAL

Revise the amendments to Section M1305.1.4.3 by adding the following language:

"Furnaces are to be hard-wired (no cord & cap unless specifically supplied by the manufacturer) with a 20 ampere motor rated disconnect within sight of the furnace."

(Amended, Ord. 2009-06, 07/18/2009) (Amended Ord. No. 2011-12, (July 19, 2011))

Revise the amendment to Section M1307.3.1 to read:

See G2408.3 for appliance protection.

Amend Section 1507.1 by deleting "or whole-house mechanical ventilation," from the first sentence.

Amend Section 1507.3 Whole-house mechanical ventilation system by deleting in its entirety.

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(Amended, Ord. 2009-06, 07/18/2009) (Amended Ord. No. 2011-12, (July 19, 2011))

CHAPTER 24, IRC, FUEL GAS

Amend Section G2406.2 by deleting numbers 3 and 4.

Change the amendment to Section G2408.3 to read as follows:

Appliances shall not be located in a location where subject to mechanical damage unless protected by approved barriers such as steel bollards filled with concrete, poured in place concrete curb, or installed wheel stops, or on a platform with a minimum clearance of 24 inches (460 mm) above the floor. Appliances not subject to mechanical damage shall be installed per Section 305.3. The exception is deleted in its entirety.

(Amended, Ord. 2009-06, 07/18/2009) (Amended Ord. No. 2011-12, (July 19, 2011))

Change the amendments to Sections G2417.4.1 and G2417.4.2 by making the following revisions:

The test pressure shall be 10 psi (or half the maximum of the gauge) for a period of 15 minutes. Gauges shall be of 1/10 pound increments or less and shall have a pressure range no greater than twice the test pressure.

(Amended, Ord. 2009-06, 07/18/2009) (Amended Ord. No. 2011-12, (July 19, 2011))

In Section G2439.4 (614.5), Makeup Air, change the amendment to read as follows:

Installations exhausting more than 200 cfm (0.09 m³/s) shall be provided with makeup air. (Amended Ord. No. 2011-12, (July 19, 2011))

CHAPTER 26, IRC, GENERAL PLUMBING REQUIREMENTS

Revise the amendment to Section P2603.6.1 to read as follows:

Building sewers that connect to private sewage disposal systems must be approved by the Coconino County Environmental Health Department Building sewers for single family detached buildings shall be a minimum of 18 inches (306 mm) below grade.

(Amended, Ord. 2009-06, 07/18/2009) (Amended Ord. No. 2011-12, (July 19, 2011))

CHAPTER 29, IRC, WATER SUPPLY AND DISTRIBUTION

Amend Section P2303.5.1, by deleting the words "other than plastic," in the first sentence.

(Amended, Ord. No. 2013-12, July 16, 2013)

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Amend Section P2904, Dwelling Unit Fire Sprinkler Systems by deleting section in its entirety

(Amended, Ord. No. 2013-12, July 16, 2013)

CHAPTER 31, IRC, VENTS

Revise the amendment to Section P3101.1, Roof Extension, to read as follows:

Add "12 inches (306 mm) above the roof."

(Amended, Ord. 2009-06, 07/18/2009) (Amended Ord. No. 2011-12, (July 19, 2011)

INTERNATIONAL RESIDENTIAL CODES (IRC), 2006 EDITION, PART X - APPENDICES

Revise the amendments to Part X - Appendices as follows:

APPENDIX F - Radon Control Methods

APPENDIX G - Swimming Pools, Spas and Hot Tubs

APPENDIX H - Patio Covers

APPENDIX J - Existing Buildings and Structures.

APPENDIX M - Home Day Care, R-3 Occupancy (a home occupation permit is required prior to receiving any building permits for conversions or improvements).

APPENDIX O - Gray Water Recycling Systems (cross reference to Chapter 11 and timing for implementation. Applicant must also meet the requirements of ADEQ if systems are larger than what the State of Arizona allows).

APPENDIX R - Straw Bale construction guide for residential use.

Section AR101 TITLE, SCOPE and PURPOSE

AR101.1 Title. These provisions shall be known as the City of Flagstaff Straw Bale Construction Code.

AR101.2 Scope. This appendix shall govern the use of baled straw as a building material, and shall apply to Group R occupancies, Group U occupancies and other occupancies when secondary and appurtenant to Group R or Group U occupancies. Unless stated otherwise in this appendix, all other provisions in this code shall apply to structures using baled straw as a building material.

AR101.3 Purpose. The purpose of this appendix is to provide minimum requirements specific to alternative building materials, reference Section R104.11 and associated testing in Section R104.11.1 Tests, with

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regards to using straw bale as a building material. With the provisions of this appendix, straw bales may be used as a structural or non-structural material. Structural uses include elements designed to support gravity loads, and elements design to resist in-plane wind and seismic loads. Non-structural uses include, but are not limited to, infill walls, insulation, landscape walls and benches.

AR101.3.1 Current test studies done Bou-Ali, Ghailene (1993), University of Arizona, Tucson; Ruppert, Grandsaet (1999), University of Colorado, Boulder; show that structurally bearing elements of straw bale are limited to between 300 - 800 pounds per linear foot depending upon the wall plaster used. The CBC also limits the walls to 20 PSF snow live loads.

AR101.3.2. For Flagstaff, with a 40 PSF snow load, the bearing capacity shall be limited to 150 - 400 pounds per linear foot. No floor loading will be allowed on straw bale walls without structural engineering.

AR101.3.3. Trussed roof spans are limited to fifteen (15) feet in width and top plates and anchoring for uplift must be provided. All other spans or sections of a house which would be two story or more must use a structural "space" frame or post and beam method. In these designs, the straw bale is being used as infill for insulation value.

Section AR102 DEFINITIONS

AR102.1 General. The following words and terms shall, for the purposes of this appendix, have the meanings shown here. Refer to Chapter 2 for general definitions used elsewhere in the International Residential Code.

Bale. Equivalent to "straw bale" for the purposes of this appendix.

Bending. A moment (force) acting on a body will induce bending stress.

Bond. The measure of adhesion; i.e., the bond of concrete or stabilized earth to reinforcing bars and anchor bolts.

Bond Beam. A structural element within a wall (usually at the top) intended to stabilize the wall and facilitate the transfer of loads from above.

Buckling. The collapse of a wall or column by bending and breaking under a vertical load.

Flake. A slab or straw removed from an untied bale. In particular, an intact slab (3-5" thick) as created by the baling machine.

Laid flat. Stacking bales so the sides and the largest area are horizontal and the longest dimension of this area is parallel with the wall plane.

Laid On-Edge. Stacking bales so the sides with the largest area are vertical and the longest dimension of this area is horizontal and parallel with the wall plane.

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Mesh. An openwork fabric of linked strands of metal, plastic or natural fiber, embedded in plaster to provide tensile reinforcement and/or bonding. (also sometimes lath).

Moisture Barrier. A continuous barrier capable of stopping the passage of water.

Non-Load-bearing. (See Non-Structural.)

Non-Structural. A straw bale wall or other element which supports only its own weight, and may resist out-of-plane lateral loads.

Pins. Metal rod, wooden dowel or bamboo driven into or secured on the surface of stacked bales for purposes of connection or stability.

Plaster. Gypsum, lime, lime-Cement, or cement plasters, as defined by the code and Section AR106 of this appendix, or clay plaster and earth-cement plaster as defined in Section AR106.9 and AR106.10.

Running Bond. The placement of straw bales such that the head joints in successive courses are offset at least one quarter of the bale length below.

Skin. The compilation of plaster and reinforcing, if any, on the surface of stacked bales.

Structural. A straw bale wall or other element which support gravity loads (dead and live) and/or resists in-plane lateral loads.

Stack Bond. The placement of straw bales such that head joints in successive courses are vertically aligned (similar to the "soldier" courses in masonry construction).

Straw. The dry stems of cereal grains left after the seed heads have been substantially removed.

Straw Bale. A rectangular compressed block of straw, bound by polypropylene strings or baling wire.

Straw-bale. The adjective form of straw bale.

Straw-clay. A mix of loose straw and clay binder.

Three-String Bale. A straw bale bound by three strings or wires. Typically with approximate dimensions of 15"x23"x42" to 48" long.

Truth Window. An area of a straw-bale wall left without its finish, to allow view of the straw otherwise concealed by its finish.

Two-String Bale. A Straw bale bound by two strings or wires. Typically with approximate dimensions of 16" or 14" x 18" x 36" to 45" long.

Vapor-Permeable Membrane. A material or covering having a permeance rating of five (5) perms or grater, when testing in accordance with the

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desiccant method using Procedure A of ASTM E96. A vapor-permeable material permits the passage of moisture. (This definition is shown for convenience and is identical to that shown in Chapter 2, 2006 IBC.)

Vapor Retarder. A vapor-resistant material, membrane or covering such as foil, plastic sheeting or insulation facing having a permeance rating of one (1) perm or less, when tested in accordance with the desiccant method using Procedure A or ASTM E96. Vapor retarders limit the amount of moisture vapor that passes through material or wall assembly. (This definition is shown for convenience and is identical to that shown in Chapter 2, 2006 IBC.)

Section AR103 BALES

AR103.1. Bales Shall Be Rectangular In Shape. The use of non-rectangular bales, such as circular bales, shall not be used in structural applications.

AR103.2 Size. Bales used with a continuous wall shall be of consistent height and width to ensure even distribution of loads with the wall system.

AR103.3 Ties. Bales shall be bound with ties of polypropylene string or baling wire. Bales with broken or loose ties shall be firmly retied. A visual check by the assigned field inspector of materials delivered to the job site will be done prior to assembly of bale walls.

AR103.4 Moisture Content. The moisture content of bales, at the time of procurement and at the time of application of the first coat of plaster or installation of another weather protective finish, shall not exceed nineteen (19%) percent of the total weight of the bale (ideal moisture content would be the same as kiln dried wood, between 15-17%). The moisture content of bales shall be determined by use of a moisture meter designed for use with baled straw or hay, equipped with a probe of sufficient length to reach the center of the bale. A minimum of five bales, selected by the inspector at random will be tested.

AR103.5 Density. Bales shall have a minimum dry density of 6 pounds per cubic foot. The dry density shall be determined by reducing the actual bale weight by the weight of the moisture content in pounds, and dividing by the volume of the bale in cubic feet. At least five bales and not less than two (2) percent, randomly selected from the bales to be used, may be tested to determine if all of the bales for the building are of acceptable density. This inspection will be done at the same time as the moisture content is done. If equipment is not available, then the builder may elect to use a third party or special inspection to perform the testing.

AR103.6 Partial Bales. Custom-made partial bales shall be firmly retied and where possible, use the same number of ties as the standard size bales.

AR103.7 Types of Straw. Bales of various types of straw, including wheat, rice, rye, barley, oat and similar grain plants, shall be acceptable if they meet the minimum requirements of this Section for

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density, shape, moisture content and ties. Bales of hay and other grasses containing seed shall not be used as a building material. When securing materials from a supplier, it is practical to remember that straw is for building and hay is for food.

AR103.8 Protection of Bales Prior To Installation. The builder must store the bales in such a manner as to protect them from weather and other sources of moisture damage. Storing bales in direct contact with the earth or uncovered during inclement weather will be subject to rejection by the building inspector.

AR103.9 Unacceptable Bales. Bales which show signs of damage due to moisture, including but not limited to mold or fungus growth or associated discoloration, even if they are of an acceptable moisture content and density, shall not be used. The builder must inspect all deliveries and protect the bales prior to the installation in the wall frames.

AR103.10 Wall Thickness. Nominal minimum bale wall thickness shall be fourteen (14") inches or greater.

Section AR104 MOISTURE

AR104.1 General. All weather-exposed bale walls, other weather-exposed bale elements and bale walls enclosing showers or steam rooms shall be protected from water damage.

AR104.2 MOISTURE CONTENT of BALES (See definitions, Section AR103.4).

AR104.3 Moisture Barriers and Vapor Retarders. Plastered bale walls may be constructed without any membrane barrier between straw and plaster, except as required elsewhere in this appendix. This is allowed to facilitate transpiration of moisture from the bales and to secure a structural bond between straw and plaster. No vapor permeance rating of less than 5 perms, except as permitted elsewhere in this appendix, or as demonstrated to be necessary by a design professional of record (this must be an Arizona Registered Architect or Engineer in accordance with ARS 32-121) shall be used.

AR104.4 Horizontal Surfaces. Bale walls and other bale elements shall have a moisture barrier at all horizontal surfaces exposed to the weather. This moisture barrier shall be of a material and installation that will prevent water from entering the wall system or other bale elements.

AR104.4.1 These horizontal surfaces include, but are not limited to exterior window sills, sills at exterior niches, bale vaults and arches, tops of landscape walls and weather-exposed benches.

AR104.4.2 The finish material at all "horizontal" surfaces shall be sloped a minimum of one inch per foot (8%) and shall drain beyond and away from all bale walls or bale elements. If the moisture barrier is below the finish material, it shall be sloped a minimum of one inch per foot (8%) and shall drain beyond the outside vertical surface of the bale's vertical finish.

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AR104.4.3 In areas where snow may collect, the moisture barrier and/or flashing element may have to be extended upwards on the vertical surface to prevent damage to the bale(s).

AR104.5 Parapets - Prohibited Construction. Parapets made of straw bales are prohibited. The roof over-hang must always extend over the top of the straw bale walls.

AR104.6 Bale/Concrete Separation. There shall be a moisture barrier and a capillary break between bales and support concrete. The moisture barrier may be of any durable sheet or liquid applied membrane that is impervious to water. The capillary break may be any material that prevents the "wicking" of moisture across the material and into the bale(s). Where bales abut a concrete or masonry wall that retains earth, there shall be a moisture barrier between the wall and the bales.

AR104.7 No Plumbing Trees Will Be Allowed in Straw Bale Walls. Conventional framed walls will be provided. Plumbing will not be installed in interior non-load bearing straw bale walls. The use of wood framed "false" walls or furred out sections in front of walls will be allowed.

AR104.7.1 Exception: Hose bibs will be allowed to penetrate a straw bale exterior wall as long as the plumbing is sleeved and the bib/sleeve extends a minimum of six (6") inches beyond the exterior/interior surfaces of the wall.

Section AR105 STRUCTURAL USE OF STRAWBALE

AR105.1 Scope. Buildings constructed with straw bales shall comply with this Section, and with all other structural provisions of the International Residential Code, 2006 Edition, Chapters 4, 5, 6 (as it pertains to those areas of a straw bale structure which is conventionally framed) and 8, unless stated otherwise in this appendix. The design considerations for Flagstaff, Arizona is found in Table R301.2(1) as amended in Title 4, City Codes, City of Flagstaff 2011 Building Code Amendments.,

AR105.1.1 Energy Considerations. The use of straw bale construction may enable the builder to meet or surpass many of the requirements of the International Energy Conservation Code (IECC).

AR105.2 General. Straw bale buildings may use any type of structural system allowed by this code and this appendix.

AR105.3 Foundations. Foundations for straw bale walls and other straw bale elements may be of any foundation type permitted by this code and amendments thereto. The frost depth requirements remain the same at 30" below finished grade. The amount of steel will remain the same at two (2), #4 rebar laid continuously at the bottom of the footing (three inches above the bottom of the footing). The straw bales may not be buried below finished grade and the first row must be placed a minimum of six (6) inches above the finished grade on a concrete slab (see detail).

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AR105.4. Alternative Foundations. Alternate foundations and foundation systems may be used if designed by an Arizona Registered design professional (Architect or Engineer).

AR105.6 Configuration of Bales. Bales may be laid flat or on-edge as limited in height by AR105.5. Bales in walls with reinforced plasters may be a running or stack bond. Bales in walls with un-reinforced plaster shall be in a running bond only.

AR105.7 Pre-Compression of Straw bale Walls.

AR105.7.1 When not required:

AR105.7.1.1. For non-structural walls

AR105.7.1.2. For walls designed or allowed to resist lateral forces only.

AR105.7.1.3. For walls bearing gravity roof loads, when the full dead load of the roof is imposed and remains on the wall for at least 28 days before plastering. No design snow load greater than 40 psf is allowed (see restrictions on spans in Section AR101.3.3). No floor loads may be supported by walls which are not pre-compressed.

AR105.7.2 When required. All walls bearing gravity loads, which are not described in AR105.6.1, shall be pre-compressed to a force equal to or greater than the design loads on the wall.

AR105.8 Voids and Stuffing. Voids in the field of structural straw bale walls shall be limited to six (6) inches in width and shall be firmly stuffed with flakes of straw or with straw-clay, before the application of plaster.

AR105.9 PLASTER SKINS.

AR105.9.1 General. Plaster skins on structural walls may be of any type allowed in Section AR106, except gypsum plaster, and shall also be limited by Table AR105-A and Table AR105-B.

AR105.9.2 Straightness. On structural walls (load bearing), plaster skins shall be straight as a function of the bale wall surface they are applied to as follows:

AR105.9.2.1. Across the face of the bale - straw bulges shall not protrude more than $\frac{3}{4}$ " across two feet of its height or length.

AR105.9.2.2 Across the face of a bale wall - straw bulges shall not protrude from the vertical plane of the bale wall more than 2-1/2" over eight (8) feet.

AR105.9.2.3 Offset of bales - the vertical face of adjacent bales may not be offset more than $\frac{3}{4}$ ".

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AR105.9.3 Plaster and Membranes. Structural bale walls shall have no membrane between straw and plaster; or shall have sufficient attachment through the bale wall from one plaster skin to the other as designed by an Arizona Registered design professional (Architect or Engineer). See sections AR106.5 and AR106.6.

AR105.10 Transfer of Loads into Plaster Skins. When plastered straw bale walls are used to bear gravity and/or lateral loads, such loads shall be transferred into the plaster skins by direct bearing or by other adequate transfer mechanism (alternatives must be provided to the Building Official for approval).

AR105.11 SUPPORT of PLASTER SKINS.

AR105.11.1 For Structural Walls. Plaster skins for structural straw-bale walls shall be continuously supported along their bottom edge to allow a load path into the foundation system. Acceptable supports include, but are not limited to: concrete or masonry footings, concrete slab, wood framed flooring which is adequately blocked for the width of the imposing load, wood beam or steel angle adequately anchored for the imposed weight of the plaster skin.

AR105.11.2 For Non-Structural Walls. Plaster skins for non-structural walls need not to be supported along their bottom edge. Maximum length of walls without cross bracing (either straw bale or conventional framing) is twenty (20) feet.

TABLE AR105-A

Allowable gravity Loads (pounds per foot)
for plastered Straw bale walls (18-23" width)

WALL PLASTER ^a	SILL PLATES ^{bc}	Anchor, Bolts or Other Sill Fastening ^c	Mesh ^d	Staples	Allowable Bearing Capacity ^h
A. Clay	c	c	None P	None P	300
B. Soil-Cement ^k	c	c	d	e,f,g	800
C. Lime	c	c	d	e,f,g	450
D. Cement-lime	c	c	d	e,f,g	800
E. Portland Cement ^h	c	c	d	e,f,g	800

^a Plasters shall conform with AR106.9 through AR106.11.2.3 for makeup and thickness with AR10.92 for straightness and with AR105.11.1 and AR105.11.2 for support of plaster skins.

^b Sill plates shall support and be flush with each face of the bale wall.

^c For walls supporting gravity loads only (or for non-structural walls), use sill plates and fasteners as required for framed walls in 2308.2 and 2308.3. See table AR 105-B for requirements for shear walls and braced panel walls.

^d May be any metal mesh allowed by this code and must be installed throughout the plaster with minimum four (4") inch laps. Fasten with

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staples per footnote "e". Staples shall be at maximum spacing of two (2") inches o.c. to roof or floor bearing assembly, or as shown necessary to

transfer loads into the plaster skins per AR105.10 and at a maximum spacing of four (4") inches o.c. to sill plates.

^e Staples shall be gun staples (stainless steel or electro-galvanized, 16 gauge with 1-1/4" legs, 7/16" crown) or manually driven staples (galvanized 15 gauge with 7/8" legs, 3/16" inner spread and rounded shoulder). Other staples may be used as designed by an Arizona Registered design professional.

^f Staples shall be firmly driven, diagonally across mesh intersections at spacing indicated. For walls with a different plaster on each side, use the lower value.

^g For walls with a different plaster on each side, use the lower value.

^h Minimum 1-1/2" thickness. Building Official may require a compression test to demonstrate a minimum 100 psi compressive strength.

ⁱ Except as necessary to transfer roof or floor loads into the plaster skins per AR105.10.

^j Minimum 1-1/2" thickness. Building official may require a compression test to demonstrate a minimum 1000 psi compressive strength.

^k Containing lime as described in AR106.11

**Table AR105-B
Allowable Shear (pounds per foot) for Plastered straw bale walls
(18" and 23" inch thick)**

Wall	Plaster ^a (both sides)	Sill Plates ^b	Anchor ^c Bolts (on center)	Mesh ^d	Staples ^{efg} (on center)	Allowable Shear ^{hi}
A1	Clay ⁱ	2x4	2'8"	None	None	100
A2	Clay ⁱ	2x4	2'8"	3"x3" knotted hemp	3"	120
A3	Clay ⁱ	4x4	2'0"	2"x2" high-density polypropylene	2"	180
B	soil-cement ⁱ	4x4	2'0"	2"x2" 14 ga ^k	2"	300
C1	lime	2x4	2'8"	17 ga. Woven wire	2"	200
C2	lime	4x4	2'0"	2"x2" 14 ga ^k	2"	250
D1	cement-lime	4x4	2'8"	17 ga. Woven wire	2"	400
D2	cement-lime	4x4	2'0"	2"x2" 14 ga ^k	2"	450

^a Plasters shall conform with AR106.9 through AR106.11.2.3 for makeup and thickness, with AR105.9.2 for straightness and with AR105.11 for support of plaster skins.

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^b Sill plates shall be pressure treated or foundation red wood.

^c Anchor bolts shall be ½" diameter with washers with a minimum seven (7") inch embedment in the concrete foundation.

AR105.11.2 Resistance to out-of-plane lateral loads. Plastered straw bale walls are capable of withstanding out-of-plane design loads prescribed in this code with the following limitations:

AR105.11.2.1. Walls with reinforced plasters shall be limited by a 6:1 ratio of stacked bale height to bale width per AR105.5 (this limits the 23 inch wide bale to 11'-6" in height and 18" inch wide bales to 9' in height).

AR105.11.2.2 Walls with un-reinforced plasters shall be limited by a 4:1 ratio of stacked bale height to bale width (this limits the 23 inch wide bale to 7'-8" and the 18" inch wide bales to 6' in height). Walls may not be built using the overall length of the bale (often 36 to 48" in length to increase the height). An exception can be made for custom made bales if the ratios of height, width and length are maintained. Regardless, no straw bale walls will be allowed to be greater than fourteen (14') feet in height without (1) being engineered by an Arizona Registered design professional or (2) being part of a post and beam structure in which the straw bales are only used as in-fill.

AR105.11.2.3 Wall with un-reinforced plasters or no plaster, and with internal or external pins, shall be limited by a 6:1 ratio of stacked bale height to bale width. Pins may be ½" diameter steel (# 4 rebar), wood or bamboo. Internal pins shall be installed vertically at a maximum of two (2') foot spacing into the bales from the top course to bottom course, with the bottom course being connected to its support similarly with pins or other approved means. Pins may be continuous or may overlap through one bale course. External pins shall have full lateral bearing on the sill plate and the roof or floor bearing member and shall be tightly tied through the wall to an opposing pin with polypropylene string or bailing wire at a thirty (30") inch maximum spacing.

AR105.11.3 PRESCRIPTIVE DESIGN USING STRUCTURAL STRAW BALE WALLS.

AR105.11.3.1 General. Plastered straw bale walls may be used structurally, without design by an Arizona design professional (Architect or Engineer), as described in this subsection. Such walls shall also comply with AR105.5 through AR 105.11.2.3 of this Section and shall comply with other Sections of this appendix as applicable.

AR105.11.3.2 Load and Other Limitations. As described in 2308.2-3 through 7, and 2308.2.2.

AR105.11.3.3 Gravity Load Bearing Walls. Limited to wall types B, C, D and E, shown in Table AR105-A. Type A walls may be used if they are demonstrated to support design loads no greater than the allowable load.

AR105.11.3.4 Braced panels. Straw bale shear walls may be used as braced panels per the requirements and limitations in IBC Section

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2308.9.3 Bracing, and per IBC Section 2308.12. Additional requirements for conventional construction in Seismic Design Category C. Straw bale shear wall types B, C, D and E shown in Table AR105-B may be used in situations where braced wall panel types 2, 3, 4, 6 and 7 are allowed. Straw bale shear wall type A may be used in situations where braced wall panels types 1 and 5 are allowed.

AR105.12 Connection of Framed Walls to Straw bale Walls. Framed walls perpendicular to or at an angle to a straw bale wall assembly, need only be fastened to the bottom and top wood members of the straw bale wall per framing connections permissible in this code. Where such connection is not possible, the abutting stud shall be connected to alternating straw bale courses with a ½" diameter steel (#4 rebar), wood or bamboo dowel with minimum of eight (8") penetration into the straw bale.

AR105.13 Alternate Performance Design Criteria (must provide structural calculations and be stamped by an Arizona Registered design professional). When plastered straw bale walls or other elements are engineered, they may use the model of retained, thin shell, reinforced concrete, as in the American Concrete Institute's ACI-318 Manual. This model may be used for all reinforced plasters, including those without cement. Such design and analysis shall be made in accordance with the following:

AR105.13.1 General. Straw bale structural systems and elements shall be designed using engineering principles, fundamental engineering behavior and principles of mechanics.

AR105.13.2 Rationality. Straw bale structural elements shall be designed based on a rational analysis in accordance with established principles of mechanics. These elements shall provide a complete load path capable of transferring all loads and forces from their point of origin to the load-resisting elements based on a rational connection of components.

AR105.13.3 System Characteristics. Strength, stiffness and toughness (ductility) characteristics of the bales and their skins shall be considered in the design of the system.

Section AR 106 FINISHES

AR106.1 General. Finishes applied to straw bale walls may be of any type permitted by this code and shall comply with this Section and the provisions of Chapter 14 (Exterior Walls, 2006 IBC) and Chapter 25 (Gypsum Board and Plaster, 2006 IBC) unless stated otherwise in this Section.

AR106.2 Purpose and Where Required. Straw bale walls and other straw bale elements shall be finished so as to provide mechanical and fire protection of the bales, restrict the passage of air through the bales and to protect them from weather.

AR106.3 Vapor Retarders. No vapor retarder may be used on a bale wall, nor shall any other materials be used which has a vapor permeance rating of less than 5 perms; except as permitted elsewhere in this appendix or

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as demonstrated to be necessary by an Arizona Registered design professional (Architect or Engineer).

AR106.4 Plaster. Plaster applied to bales may be of any type described in this section.

AR106.5 Plaster and Membranes. Plaster may be applied directly to straw bale walls and other straw bale elements, in order to facilitate transpiration of moisture from the bales and to secure a mechanical bond between the skin and the bales; except where a membrane is allowed or required elsewhere in this appendix. Structural bale walls shall have no membrane between straw and plaster or shall have sufficient attachment through the bale wall from one plaster skin to the other, as designed by an Arizona Registered design professional (Architect or Engineer).

AR106.6 Lath and Mesh for Plaster. In straw bale construction the surface of the straw bales functions as lath and no other lath or mesh is necessary; except as required for tensile strength of the plaster and/or wall assembly in particular structural applications (see AR105). Straw bales laid flat or on-edge provide a sufficient mechanical bonding surface between plaster and straw.

AR106.7 Plaster on Non-Structural Walls. Plaster on walls that do not carry gravity loads and are not designed to resist in-plane lateral forces, may be any plaster as described in this Section.

AR106.8 Plaster on Structural Walls. Plaster on structural walls shall comply with AR105.9 through AR105.11. Plaster on walls that carry gravity loads shall comply with Table AR105-A. Plaster on walls designed to resist in-plane lateral forces, shall comply with Table AR105-B.

AR106.9 Clay Plaster (Also known commonly as earth or earthen plaster).

AR106.9.1 General. Clay plaster is any plaster whose binder is comprised primarily of clay. Clay plasters may also contain sand or other inert granular material and may contain reinforcing fibers. Acceptable reinforcing fibers include, but are not limited to, chopped straw, hemp fiber, nylon fiber and animal hair.

AR106.9.2 Mesh. Clay plaster may have no mesh.

Exception: A natural fiber mesh, corrosion-resistant metal mesh or high-density polypropylene mesh may be used.

AR106.9.3 Thickness. Clay plaster shall be a minimum one (1") inch thick, unless required to be thicker for structural or fire-resistance as described in this appendix.

AR106.9.4 Rain-Exposed. Clay plaster, where exposed to rain (snow) shall be finished with lime plaster or other erosion resistant finish.

AR106.9.5 Prohibited Finish Coat. Cement plaster and cement-lime plaster are prohibited as a finish coat over clay plasters.

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AR106.9.6 Additives. Additives may be used to increase the plasters workability, durability, strength or water resistance.

AR106.9.7 Separation of Wood and Clay Plaster. No separation or moisture barrier is required between untreated wood and clay plaster. (Wood, earth and foundation separation requirements are still enforced and covered in Section R319 and R403 of 2006 IRC).

AR106.10 Earth-Cement Plaster (also know commonly as soil-cement, stabilized earth or pise').

AR106.10.1 General. Earth-cement plaster is comprised of earth (free or organic matter), Portland cement and may include sand or other inert granular material. May contain reinforcing fibers.

AR106.10.2 Mesh. Earth-cement plaster shall use any corrosive-resistant metal mesh permitted by this code and as described in Section AR105 if used on a structural wall.

AR106.10.3 Thickness. Earth-cement plaster shall be a minimum of 1-1/2" thick.

AR106.11 Gypsum Plaster.

AR106.11.1 General. Gypsum plaster shall comply with Section 2511 of the 2006 IBC.

AR106.11.2 Restriction of Use. Gypsum plaster is limited to use on interior surfaces and on non-structural walls, except as a finish coat over an allowed structural plaster.

AR106.12 Lime Plaster.

AR106.12.1 General. Lime plaster is any plaster whose binder is comprised primarily of calcium hydroxide (CaOH). This includes Type N or Type S hydrated lime, natural hydraulic lime or quicklime. Lime plasters shall comply with ASTM Standards C5 and C206. The plaster may be applied in two coats, provided that the combined thickness is a least 7/8" thick and each coat is not great than 5/8" thick. The combined thickness of all plaster coats (regardless of numbers) shall be no more than 1-1/2" thick.

AR106.13. Cement-Lime Plaster.

AR106.13.1. General. Cement-lime plaster shall comply with Section 2508 of the 2006 IBC, except that the plaster may be applied in two (2) coats, provided that the combined thickness is at least 7/8" thick and each coat is no greater than 5/8" thick.

AR 106.14 Portland Cement Plaster.

AR106.14.1 General. Portland cement plaster shall comply with Section 2512 (2006 IBC) of this code, except that the amount of lime in all plaster coats shall be a minimum of one (1) part lime per six (6) parts cement so as to allow a minimum acceptable vapor permeability. The

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plaster may be applied in two (2) coats, provided that the combined thickness is at least 7/8" thick and each coat is not great than 5/8" thick. The combined thickness of all plaster coats (regardless of numbers) shall be no more than 1-1/2" thick.

AR106.15 Alternative Plasters. Plasters or variations of plasters, which do not fit in any other category described in this Section, may be allowed if such plasters are demonstrated to be appropriate for the particular application. Approval shall be made by the Building Official.

AR106.16. Finishes Over Plaster. Other finishes, as permitted elsewhere in this code, may be applied over the plaster, except as prohibited in Section AR106.17.

AR106.17. Prohibited Plasters and Finishes. Any plaster or finish with a cumulative perm rating of less than 5 perms is prohibited on straw bale walls or other bale elements, unless demonstrated to be necessary by the Arizona Registered design professional (Architect or Engineer).

AR106.18. Separation of Wood and Plaster. Where wood framing or wood sheathing occur in straw bale walls, such wood surfaces shall be separated from any plaster finish with No. 15 asphalt felt, Grade 'D' paper or other approved material per Section 1404.2 of this code, unless the wood is preservative-treated or naturally durable.

Exception: Clay plasters, see Section AR106.9.7

Section AR107 FIRE-RESISTANCE

AR107.1 Fire-Resistance Rating.

AR107.2. Rating with Plaster Finish. Plastered straw bale walls have a one-hour fire resistance rating, provide the components of the wall fit with all of the following parameters:

AR107.2.1 Bales may be laid flat or on-edge.

AR107.2.2 The bale wall must have a minimum un-plastered thickness of fourteen (14") inches.

AR107.2.3. Bales may be installed in a running bond or stack bond, but vertical joints in a stack bond and continuous vertical gaps at any posts within both types of wall, must be fire-stopped with straw-clay

AR107.2.4. The wall must be finished on both sides and exposed ends with a plaster of any type allowed by this appendix. Clay plaster must be a minimum 1-1/2" thick and a minimum of two layers.

AR107.2.5 The wall may be no closer than five (5') to a property line.

AR107.2.6 Rating with other finishes. Straw bale walls covered with finish materials other than or in addition to plaster, shall be deemed

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to have the equivalent fire resistive rating as wood-frame construction covered with the same finish materials.

AR107.3 Permitted in Types of Construction. Straw bale walls with a one-hour fire resistance rating per Section AR107.2 are permitted wherever combustible one-hour walls are allowed by Chapter 6 of the IBC. Such walls and unrated straw bale walls with any finish allowed by this code are permitted whenever combustible no-hour walls are allowed in Chapter 6 of the IBC.

AR107.4 Openings in Rated Walls. Openings and penetrations in any straw bale wall rated and required to be rated for a particular fire-resistance rating and for a particular applications, shall satisfy the same requirements for openings and penetrations in walls with the same fire-resistive rating and application as stated elsewhere in this code.

AR107.5 Clearance to Fireplaces and Chimneys. Straw bale surfaces adjacent to fireplaces or chimneys shall have a minimum of 2" clearance from the surfaces of the plaster coat and the chimney structure. The space between can be bridged by non-combustible materials, such as flashing and aluminum or other metal channel materials.

Section AR108 ELECTRICAL

AR108.1 Scope. Wiring and other elements of the electrical system within or mounted to straw bale walls shall comply with all Sections of this code which govern electrical systems and with the 2011 National Electric Code.

AR108.2 Wiring. Type NM or UF cable may be used, or wiring may be in metallic or non-metallic conduit (which is the preferred method). Wiring which is unprotected by conduit shall be installed a minimum of two (2") inches from the face of the bale, except as necessary to enter or exit a junction box. The wiring shall be pushed into joints between bales or into the bale itself or the bales may be channeled to receive the wire.

AR108.3 Wiring Attachment. Where not held securely between bales or within a bale and not attached via staples to a wood member, wiring on straw bale walls shall be attached with minimum 17 gauge wire in a "U" configuration with a minimum eight (8") long legs.

AR108.4 Attachment of Electrical Boxes. Electrical boxes on bale walls shall be securely fastened to non-bale structural elements or to wooden stakes driven a minimum of twelve (12") into the bales or shall be secured by a combination of wire mesh and plaster, or by an acceptable equivalent method.

AR108.5 Attachment of Service and Sub-panels. Electrical service and sub-panels on bale walls shall be securely fastened to wood structural members, or to other wood members that have been adequately fastened to the straw bales. All proposed service panel and sub-panel support members shall be approved by the field inspector prior to attachment. The administrative authority, Arizona Public Service, retains the right

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to make any adjustments for support requirements and should be contacted prior to installation.

Section AR109 WALL AND ROOF BEARING ASSEMBLY ANCHORAGE AND CONSTRUCTION

AR109.1 General. The following is a recommended construction technique for straw bale construction. A designer or Arizona Registered design professional may submit other proposed methods as long as the general requirements of this Section and the International Building Codes are followed.

AR109.2 Bale interconnection support. Vertical reinforcing bars with a minimum diameter of ½" (#4 rebar), shall be embedded in the foundation at a minimum depth of six (6") inches and shall extend above the foundation a minimum of twelve (12") for the purpose of impaling the first course of bales. These vertical bars shall be located along the centerline of the bale wall, spaced not more than two (2) feet apart. A vertical bar shall also be located within one (1) foot of any opening (doors or window element) or corner, except at locations occupied by anchor bolts. These pins or bars will be wet set along with the anchor bolts.

AR109.3 Intersecting walls. Wall of other materials intersecting the straw bale walls shall be attached to the bale wall by means of one or more of the following methods or an acceptable equivalent.

(Adopted, Ord. No. 2009-06, 07/17/2009 (Amended Ord. No. 2011-12, (July 19, 2011)

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CHAPTER 4-03

INTERNATIONAL BUILDING CODE

Sections:

4-03-001-0001 AMENDMENTS, ADDITIONS, AND DELETIONS

Section 4-03-001-0001 Amendments, Additions, and Deletions

The following provisions shall have the effect of either amending, adding to, or deleting from the International Building Code adopted in Flagstaff City Code, Title 4, Building Regulations, Chapter 4-01, Administrative Enactments, Section 4-01-001-0002, Adoption.

Amend IBC Section 105.1.1, Annual permit and Section 105.1.2 by replacing with the following:

Section 105.1.1 Annual Facilities Permit Requirements - General. The Annual Facility Permit is intended to simplify the permitting and inspection process for Qualified Facilities. The Annual Facility Permit simplified the process by allowing City inspectors to review plans without being processed through formal plan review. Instead, it allows the Qualified Agent and /or the Qualified Facility Maintenance Staff member, who are familiar with the construction history of the Qualified Facility, to review work without requiring a standard building permit. The process provides a limited exemption from the Building Code compliance. The Annual Facility Permit is issued to a business owner(s) for one building or a series of related buildings in a single complex owned by the same owner(s). The Annual Facility Permit fee shall be \$3,500 initially and \$2,000 for the Annual Facility Permit renewal fee. The business owner(s) covered under the Annual Facility Permit shall provide annual certification for the Qualified Agent and shall provide a detailed description of the anticipated work to be performed under the Annual Facility Permit.

Add 105.1.1.1 Definitions: For the purposes of this section, certain terms are defined as follows:

INSPECTOR is a person employed by the City of Flagstaff (either through contractual services or as a full time City employee) to perform field and/or plan review inspections of buildings and structures in order to enforce the City's Building Code requirements.

PROJECT SCOPE LIMITATIONS are restrictions on the size of a project for eligibility for the Qualified Facility building permit exemption under an Annual Facility Permit. The exemption eligibility is limited to projects not to exceed \$35,000 in construction costs or twenty-five percent (25%) of the existing square footage of the structures.

QUALIFIED FACILITY MAINTENANCE STAFF MEMBER is a person(s) either employed by or contracted with the Qualified Facility owner(s) and who

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is certified by the State of Arizona in the case of specialized inspections, such as (elevators, boiler, and fire sprinkler suppression systems) and/or is authorized by the Qualified Facility owner(s) to engage a Licensed contractor for the type of work being performed.

QUALIFIED AGENT is a person(s) authorized to represent the business Owner(s) of a Qualified Facility, registered and residing in the State of Arizona, and who shall be responsible to the business owner(s) for compliance with the substantive provisions of this code.

QUALIFIED FACILITY is an existing structure(s) owned by an individual(s), firm, corporation, or legal entity engaged in the business of manufacturing, processing, providing services or other commercial enterprise. The Qualified facility includes all existing Specialized Buildings and related building service equipment, all of which shall be an integral part of the business of manufacturing, processing, providing services, or other commercial enterprises of business owner(s). Subject to Project Scope Limitations, the Qualified facility under an Annual Facility Permit is generally exempt from the standard building permit requirements pertain to remodeling, repairs, alterations, improvements and conversions constructed completely within the original "footprint" of the existing structure(s). Any Qualified Facility which requires new additions, new detached facilities, or new facilities associated with all operations, shall require Development Review Board approval and shall meet all standard building permit requirements as set forth in Section 105.

SPECIALIZED BUILDING is an existing structure(s) that serves as an accessory building(s) as defined by Section 10-14-004-0001 of the City's Land Development Code, COF Ord.1690, and is used for the business of manufacturing, processing, provision of services, or other commercial enterprise of the Qualified Facility.

Add 105.1.2.2. Permit Issuance. Each applicant for an Annual Facilities Permit shall fill out an "Application for BUILDING/GRADING Permit" form. Each Qualified Facility shall require a separate application form. The information on the form shall include the following:

- A. The name, address, phone number, and business operation of the Qualified Facility owner(s). The name, address, and phone number of the Qualified Agent (if any) for the business and proof of current technical registration and licensing by the State of Arizona. If the Qualified Agent is not an employee of the Qualified Facility owner(s), the contract shall be for at least a one-year term.
- B. The name and phone number of the Qualified Facility Maintenance Staff Member for the Qualified Facility owner(s).
- C. A statement that the Qualified Agent may on behalf of the Qualified Facility owner(s), contract with third party on-site inspectors and/or superintendents for completing work under the Annual Facility Permit. In addition, a statement that the Qualified Facility owner(s) assumes all Responsibility for

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assuring that all work performed under the Annual Facility Permit meets the current Building Code standards.

- D. A site plan clearly indicating the existing location and total square footage of the entire Qualified Facility at the site intended to be covered under the Annual Facility Permit, including all Specialized Buildings and building service equipment.
- E. A statement describing the nature and extent of all work expected to be performed at the Qualified Facility under the Annual Facility Permit.

Add 105.1.2.2.1 The Annual Facility Permit applicant may schedule inspections using the blanket permit issued after pre-paying an hourly fee (currently \$47/hour, Section 107 of the 1997 Uniform Administrative Code) and scheduling the inspection prior to any time limitations provided by the City of Flagstaff.

Add 105.1.2.2.2 The appropriate routing action shall be taken by the City's Building Official for review of each Annual Facility Permit application. The applicant shall be notified upon approval or denial. If the application is disapproved, the applicant may appeal such decision to the Building and Fire Code Board of Appeals (Resolution 2001-42, 19 June 2001) no later than fourteen (14) calendar days after receipt of notice of disapproval. The fee for filing an appeal is \$250, which is non-refundable.

Add 105.1.2.3 Permit Expiration. The Annual Facility Permit(s) shall be valid for a period of one year from the date of issue. The Annual Facility Permit shall be renewed annually and timely payment of annual renewal fee shall be made prior to performing any further permitted work.

Add 105.1.2.3.1 If the Qualified Agent's contract or employment at the Qualified Facility terminates prior to the expiration of the Annual Facility Permit, the Qualified Facility owner(s) shall notify the City's Building Official in writing within seven (7) calendar days. The Qualified Facility owner(s) shall engage a replacement Qualified Agent within fifteen (15) calendar days or the Annual Facility Permit shall automatically terminate. Application for a new Annual Facility Permit(s) shall be submitted with payment of new fees after fifteen (15) calendar days if no new Qualified Agent is contracted with or employed under the original Annual Facility Permit by that time. If the original Annual Facility Permit terminates and no new Annual Facility Permit is issued, then the Qualified Facility owner(s) shall complete any unfinished work with inspections provided by the City of Flagstaff at a regular hourly rate. No new projects may be started at the Qualified Facility under a terminated Annual Facility Permit.

105.1.2.4 Scope of Work. Project Scope Limitations shall be determined by project size (both dollar amount and physical area). Projects for remodeling, repairs, alterations, improvements, and conversions within the original "footprint" of the existing building(s) shall be limited

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to \$35,000 per project or no more than 25% of the original footprint area of the existing building(s) comprising the Qualified Facility.

Add 105.1.2.4.1 Projects may not alter or modify egress or required fire sprinkler systems without specific review and approval by the City's Building Official. Fire sprinkler systems shall require a separate permit issued through the City of Flagstaff Fire Department. Plan review shall be reimbursed at the hourly rate currently in effect.

Add 105.1.2.4.2 Projects may not be phased to circumvent the Project Scope Limitations. If the entire building is going to be renovated, or if there will be a significant change in occupancy, or if there will be a change in use, or if the portions of the building(s) will require demolition prior to renovation, then the Development Review Board and standard building permit process shall apply.

Add 105.1.2.4.3 A list of all projects underway or completed under the Annual Facility Permit shall be maintained by the Qualified Agent and made available for review by the City of Flagstaff Building Official upon request.

Add 105.1.2.4.4 All commercial demolition shall be subject to the rules established by Title 40, Code of Federal Regulations, Part 61, Subpart M, Asbestos NESHAP; Arizona Revised Statutes Title 49, § 49-421 et. seq. and § 49-471 et seq.; and Arizona Administrative Code, Title 18, Chapter 2, R18-2-1101. (See exemptions on page 3, Sec 61.145(a) Applicability).

CHAPTER 5 of IBC, GENERAL BUILDING HEIGHTS AND AREAS

Amend Section 509, "Tenant Space Separation" by adding:

Section 509.1 All tenant spaces within a single structure shall be separated by a wall constructed of wood or metal studs and covered with a minimum of ½" drywall material on each side from the finished floor to the underside of the roof deck or flooring above. Walls can be constructed of any material approved by the Building Code. Requirements for fire rated separations will be governed by the different types of occupancy and materials and protection requirements are covered in Chapter 7, 8 and 9 of this code.

CHAPTER 15 IBC, ROOF ASSEMBLIES AND ROOFTOP STRUCTURES

Revise the amendment to Section 1506.3 with the following language:

All roofing materials used must be a class "A" or "B" material and rolled roofing is to be of a self-adhering polymer bitumen type material.
(Amended, Ord. 2009-06, 07/18/2009)

Amend Sections 1507.8 and 1507.9 by deleting each section in their entirety.

CHAPTER 18 of IBC, SOILS AND FOUNDATIONS

Amend Sections 1805.2 and 1805.4 by adding:

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1805.2.4 and 1805.4.6 Footing Reinforcement. A minimum of 2-#4 steel reinforcement spaced per ACI 318, Section 7.5 shall be required in all footings.

Amend 1805.4.1 by changing the last line of the first paragraph to:

The minimum width of footings shall be 16 inches.

Amend Table 1805.4.2 by changing:

12 and 15 inch width of footing to 16 inches minimum.

6 inch thickness of footing to 8 inches minimum.

Amend Section 1805.5.2.2 by adding paragraph number 8:

8. Masonry foundation walls shall be solid grouted up to floor slab.

CHAPTER 31, IBC, SPECIAL CONSTRUCTION

Revise the amendment to Section 3109, Swimming Pool Enclosures and Safety Devices, as follows:

Refer to the Arizona Revised Statutes (ARS) governing pool enclosure requirements. (Amended Ord. No. 2011-12, (July 19, 2011))

INTERNATIONAL BUILDING CODES (IBC), 2012 EDITION - APPENDICES

Adopt as the following appendices with the exceptions and/or amended language as follows:

Appendix B - Board of Appeals

Appendix C - Group U - Agricultural Buildings

APPENDIX I - Patio Covers

APPENDIX J - Grading

Amend Appendix J by adding Section J104.5 Storm Water requirements:

1. Contractor shall submit to the Arizona Department of Environmental Quality a Notice of Intent (NOI) and a Notice of Termination (NOT) pursuant to the requirements of ARS Title 49, Chapter 2, Article 3.1. A copy of the submitted NOI and the NOT shall be provided to the City of Flagstaff Stormwater Section. The NOI shall be submitted prior to issuance of any City of Flagstaff grading or offsite permits. The NOT shall be submitted prior to final acceptance of off-site improvements and the certificate of occupancy.
2. An Arizona certified or Registered Civil Engineer shall prepare and submit for review and approval a Storm water Pollution

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Prevention Plan (SWPPP) in accordance with the Arizona Department of Transportation (ADOT) Best Management Practices (BMP) Manual (or other BMP's as may be approved by the Storm water Manager). Submittal shall be made concurrent with the Civil Plan submittal and attached to the Civil Plan set. Review timeframes shall be the same as other civil reviews.

3. Prior to commencement of Grading Activities, the SWPPP shall be in place and the City of Flagstaff contacted for inspection. The grading permit shall be issued upon City of Flagstaff approval of the implementation of the approved SWPPP.
4. During construction, the SWPPP shall remain in place, and shall be maintained until project completion as witnessed by a Final Grading Certification and the filing of a NOT. Failure to maintain structural controls may result in a Stop Work Order.
5. In accordance with the provisions of this section, the City of Flagstaff may withhold permits, occupancy or enforce by other remedy in order to ensure compliance.

(Amended Ord. No. 2007-47, 12/18/2007; Amended Ord. 2007-48, 01/15/2008;
Amended, Ord. 2009-06, 07/18/2009; Amended Ord. 2011-12, July 19, 2011)
(Amended, Ord. No. 2013-12, July 16, 2013)

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CHAPTER 4-04 INTERNATIONAL PLUMBING CODE

Sections:

4-04-001-0001 AMENDMENTS, ADDITIONS, AND DELETIONS

4-04-001-001 Amendments, Additions, and Deletions

The following provisions shall have the effect of either amending, adding to, or deleting from the International Plumbing Code adopted in Flagstaff City Code, Title 4, Building Regulations, Chapter 4-01, Administrative Enactments, Section 4-01-001-0002, Adoption.

CHAPTER 3, GENERAL REGULATIONS

Amend Section 301.3 by adding to the end of the paragraph:

This section shall not be construed to prevent indirect waste systems required by Chapter 8.

Exception: Bathtubs, showers, lavatories, clothes washers and laundry trays shall not be required to discharge to the sanitary drainage system where such fixtures discharge to an approved gray water system for flushing of water closets and urinals or for subsurface landscape irrigation.

(Amended Ord. No. 2011-12, (July 19, 2011))

Amend Section 301.7 to read:

Where conflicts between this Code and the conditions of the listing or the manufacturer's installation instructions occur, the listing or manufacturer's installation requirements shall apply.

Amend last sentence of Section 305.6 to read:

Exterior Water supply piping shall be installed not less than thirty (30) inches (765 mm) below grade.

Change the amendment to Section 305.6.1 by adding the following language:

Building sewers that connect to private sewage disposal systems shall be regulated by the Coconino County Health Department. Building sewers for single family detached buildings on City provided sewer shall be a minimum of twelve (12) inches (306 mm) below grade.

(Amended Ord. No. 2011-12, (July 19, 2011))

Amend Section 312.1, changing the tenth sentence to read:

All plumbing system piping shall be tested with either water or air.

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(Amended, Ord. No. 2013-12, July 16, 2013)

Amend Section 312.3 by deleting the first sentence.

Amend Section 312.4 to DELETE in its entirety.

Amend Section 312.6 to DELETE in its entirety.

Amend Section 312.7 to DELETE in its entirety.

CHAPTER 4, FIXTURES, FAUCETS AND FIXTURE FITTINGS

Amend Section 419, Urinals by adding a new sub-section:

419.4 Urinals. All new commercial, institutional, and public facility construction or additions and alterations to restrooms in commercial, institutional, and public facilities shall install urinals with a maximum 1 pint flush.

Amended Ord. 2007-48, 01/15/2008; Amended, Ord. 2009-06, 07/18/2009; Amended Ord. No. 2011-12, July 19, 2011; Amended, Ord. No. 2013-12, July 16, 2013)

CHAPTER 6, WATER SUPPLY AND DISTRIBUTION

Amend Table 604.4 by changing the following values:

Maximum Flow Rate or Quantity for a Water Closet to Max. 1.3 gal.(HET)

Amend Section 607.2 by deleting the section in its entirety.

Amend Section 610 to DELETE in its entirety.

CHAPTER 7 SANITARY DRAINAGE

Amend Section 703 by adding a new section:

703.6 Building Sewer Locating Means. All non-metallic building sewer piping shall be installed with a plastic covered No. 12 AWG Type UF 600V tracer wire taped to the top of the piping with a minimum 10 mil tape. The building sewer tracer wire shall be green in color.

CHAPTER 9, VENTS

Revise the amendment to Section 904.1 to read:

"...terminated at least 12 inches (306 mm) above the roof."

(Amended Ord. No. 2011-12, (July 19, 2011)

Adopt the Appendix C, Gray Water Recycling Systems, as written.

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TITLE 4, BUILDING CODE**

Amended Ord. No. 2007-47, 12/18/2007; Amended Ord. 2007-48, 01/15/2008

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CHAPTER 4-05

NATIONAL ELECTRICAL CODE

Sections:

[4-05-001-0001](#) AMENDMENTS, ADDITIONS, AND DELETIONS

4-05-001-0001 Amendments, Additions, and Deletions

The following provisions shall have the effect of either amending, adding to, or deleting from the National Electrical Code adopted in Flagstaff City Code, Title 4, Building Regulations, Chapter 4-01, Administrative Enactments, Section 4-01-001-0002, Adoption.

ARTICLE 110, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS

Amend Article 110.2 by adding:

All electrical conductors, components, material and equipment shall be listed and labeled.

Amend Article 110.5 to read:

Conductors used to carry current shall be of copper only. Where the conductor material is not specified, the material and the sizes given in this Code shall apply to copper conductors. The use of aluminum wire shall be approved for feeders and service entrance conductors only and shall not be used for branch circuit wiring.

Amend Article 110.7 by adding:

All equipment rated at 1000 amperes or more shall be tested for insulation breakdown, mechanical integrity, and workmanship prior to the equipment being energized. A certified Hi-pot test shall be performed and a certificate issued to the City of Flagstaff Project Inspection Program, Development Services Section. This test shall be performed in the presence of a City of Flagstaff Building Inspector and conducted by a testing firm approved by the Building Official.

Said test shall be performed for a period of one (1) minute, the application of a 60 hertz alternating potential of 1000 volts plus twice the rated phase to phase voltage of the equipment.

This test shall be performed between all phases to ground, phase to phase, and neutral if isolated.

ARTICLE 210, CIRCUITS

Amend Article 210.5 by adding:

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- (D) **Color Code.** Where 15, 20, or 30 amp branch circuits requiring a neutral are installed in race ways or cable assemblies, the conductor of branch circuits connected to the same system shall conform to the following color code:

<u>Volts</u>	<u>Phase</u>	<u>System</u>	<u>Phase A</u>	<u>Phase B</u>	<u>Phase C</u>	<u>Neutral</u>
120/208	3	Wye	Black	Red	Blue	White
120/240	3	Delta	Black	Orange	Blue	White
277/480	3	Wye	Brown	Orange	Yellow	Gray

ARTICLE 250, GROUNDING

Amend Article 250.30 (A) (2) by adding:

- (a) All new building construction shall have a one piece concrete-encased electrode and electrode conductor (Ufer), a minimum twenty (20) feet in the footing, sized from the following table:

0-200 Amp Service	1 piece #4 copper (electrode and electrode conductor)
400 Amp Service	1 piece 1/0 copper (electrode and electrode conductor)
600 Amp Service	1 piece 2/0 copper (electrode and electrode conductor)
Larger than 800 Amp Service	1 piece 3/0 copper (electrode and electrode conductor)

Where the Ufer has been lost, damaged, or un-located, a ground ring or modification of the same consisting of thirty (30) feet of #2 bare copper wire, buried a minimum of thirty (30) inches deep in a trench, or a Plate electrode per 250.53 (H) and per 250.56 shall be required in lieu of a concrete-encased electrode. Services larger than 200A shall be sized from the table above.

(Amended Ord. No. 2007-47, 12/18/2007; Amended Ord. 2007-48, 01/15/2008; Amended Ord. No. 2009-06, 07/18/2009; Amended Ord. 2011-12, July 19, 2011)

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CHAPTER 4-06

INTERNATIONAL MECHANICAL CODE

Sections:

4-06-001-0001 AMENDMENTS, ADDITIONS, AND DELETIONS

Section 4-06-001-0001 Amendments, Additions, and Deletions

The following provisions shall have the effect of either amending, adding to, or deleting from the International Mechanical Code adopted in Flagstaff City Code, Title 4, Building Regulations, Chapter 4-01, Administrative Enactments, Section 4-01-001-0002, Adoption.

CHAPTER 3, General Regulations

Revise the amendment to Section 303.4 as follows:

Refer to amendments to the IFGC Section 305.5 for requirements.

(Amended Ord. No. 2011-12, (July 19, 2011))

Amend Section 304.2 to read:

Where conflicts between this Code and the conditions of the listing or the manufacturer's installation instructions occur, the listing and manufacturer's installation requirements shall apply.

Amend Section 304.6 to read:

Appliances located in private garages and carports shall be installed per Section 303.3 and/or 304.4.

Amend Section 306.1 by adding to the last sentence "or the removal of any other appliances."

CHAPTER 9, IMC, SPECIFIC APPLIANCES, FIREPLACES, AND SOLID FUEL-BURNING EQUIPMENT

Amend Section 903.3 to read:

An unvented gas log heaters shall not be installed at any time unless first approved by the local gas utility company. A signed and dated letter of such approval shall be submitted to the Building Official before a permit can be issued.

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Amend Section 928, Unvented Room Heaters, by adding:

928.1 Installation. Vent free appliances shall not be installed unless first approved by the local gas utility company. A signed and dated letter of such approval shall be submitted to the Building Official before a permit can be issued.

CHAPTER 10, BOILERS, WATER HEATERS and PRESSURE VESSELS

Amend Section 1002.1 by changing the second sentence to read:

All water heaters shall be capable of being removed without first removing a permanent portion of the building structure or removing another appliance.

(Amended Ord. No. 2007-47, 12/18/2007; Amended Ord. 2007-48, 01/15/2008 Amended Ord. No. 2009-06, 07/18/2009; Amended Ord. No. 2011-12, July 19, 2011)

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CHAPTER 4-07

INTERNATIONAL FUEL GAS CODE

Sections:

4-07-001-0001 AMENDMENTS, ADDITIONS, AND DELETIONS

Section 4-07-001-0001 Amendments, Additions, and Deletions

The following provisions shall have the effect of either amending, adding to, or deleting from the International Fuel Gas Code adopted in Flagstaff City Code, Title 4, Building Regulations, Chapter 4-01, Administrative Enactments, Section 4-01-001-0002, Adoption.

(Amended Ord. 2011-12, July 19, 2011)

CHAPTER 3, GENERAL REGULATIONS

Amend Section 303.3 by deleting numbers 3 and 4.

Delete the following amendments to Chapter 3:

Amend Section 305.5. Private Garages by deleting in its entirety and replacing with:

Appliances shall not be installed in a location where subject to mechanical damage unless protected by approved barriers such as steel bollards filled with concrete, poured in place concrete curb, or installed a minimum 24 inches above the floor. Appliances not subject to mechanical damage shall be installed per Section 305.3

Amended Ord. No. 2007-47, 12/18/2007; Amended Ord. 2007-48, 01/15/2008;
Amended Ord. No. 2009-06, 07/18/2009) (Amended Ord. No. 2011-12, July 19, 2011)

CHAPTER 4, GAS PIPING IMSTALLATIONS

Amend Section 403.4.3. Copper and Brass, delete and replace with:

Copper and brass pipe, threaded copper, brass and aluminum piping shall not be used for gas piping installations within the City of Flagstaff.

Amend Section 406.4.1. Test Pressure, to read:

The test pressure to be used shall be no less than ten (10) pounds per square inch gauge pressure or six (6) inches of mercury measured with a manometer or slope gauge for single family dwellings or for systems with less than fifteen (15) pounds per square inch or fourteen (14) inches of water column. Welded piping and piping that carries gas at

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pressure in excess of fourteen (14) inches of water column or fifteen (15) pounds per square inch shall be tested with no less than sixty (60) pounds per square inch. The test gauge shall not be more than twice the test pressure and in 1/10 pound increments or less.

Amended Ord. No. 2007-47, 12/18/2007; Amended Ord. 2007-48, 01/15/2008; Amended Ord. No. 2009-06, 07/18/2009) (Amended Ord. No. 2011-12, July 19, 2011)

Amend Section 406.4.2. Test Duration, to read:

Test duration shall be no less than fifteen (15) minutes for single family dwellings or systems with less than fifteen (15) pounds per square inch, fourteen (14) inches of water column. Welded piping, and systems with fifteen (15) pounds per square inch (14 inches of water column) or more shall be tested for no less than thirty (30) minutes.

CHAPTER 6, SPECIFIC APPLIANCES

Amend Section 614.5. Makeup air, by deleting the first sentence:

Installations exhausting more than 200 cfm (0.09 m³/s) shall be provided with makeup air.

Amend Section 621. Unvented Room Heaters, to be deleted in its entirety.

Amended Ord. No. 2007-47, 12/18/2007; Amended Ord. 2007-48, 01/15/2008; Amended Ord. No. 2009-06, 07/18/2009) (Amended Ord. No. 2011-12, July 19, 2011)

2013 AMENDMENTS TO FLAGSTAFF CITY CODE, TITLE 4, BUILDING CODE

CHAPTER 4-08

INTERNATIONAL EXISTING BUILDING CODE

Sections:

4-08-001-0001 AMENDMENTS, ADDITIONS, AND DELETIONS

4-08-001-0001 Amendments, Additions, and Deletions

The following provisions shall have the effect of either amending, adding to, or deleting from the International Existing Building Code adopted in Flagstaff City Code, Title 4, Building Regulations, Chapter 4-01, Administrative Enactments, Section 4-01-001-0002, Adoption.

CHAPTER 1, ADMINISTRATION

Amend	Section	105.1.1.	Annual
Code Amendments to the International Building Code (IBC), 2012 Edition for requirements and compliance issues.			
Amend Section 105.5. Expiration , by referencing City of Flagstaff 2013 Code Amendments to the International Residential Code (IRC), 2012 Edition and International Building Code (IBC), 2012 Edition for requirements and compliance issues on the duration of building permits.			

CHAPTER 11, HISTORIC BUILDINGS

Revise the amendment to Section 101.2 as follows:

Amend Section 1101.2 Report by adding Section 1001.2.1 as follows:

Section 1101.2.1, Any changes to a structure in a historic district or to buildings listed on the City of Flagstaff Historic Registry shall be reviewed by the Community Investment Division, Historic Preservation representative, and Project Management Section, Development Services Division prior to issuing a building permit. The project may be referred to the Development Review Board and/or the Historic Preservation Commission for complete staff review by the board members.

(Amended Ord. No. 2011-12, July 19, 2011)

Amended Ord. No. 2007-47, 12/18/2007; Amended Ord. 2007-48, 01/15/2008; Amended Ord. No. 2009-06, 07/18/2009) (Amended Ord. No. 2011-12, July 19, 2011)

2013 AMENDMENTS TO FLAGSTAFF CITY CODE, TITLE 4, BUILDING CODE

CHAPTER 4-09

INTERNATIONAL ENERGY CONSERVATION CODE

Sections:

[4-09-001-0001](#) **AMENDMENTS, ADDITIONS, AND DELETIONS**

Section 4-09-001-0001 Amendments, Additions, and Deletions

The following provisions shall have the effect of either amending, adding to, or deleting from the International Energy Conservation Code adopted in Flagstaff City Code, Title 4, Building Regulations, Chapter 4-01, Administrative Enactments, Section 4-01-001-0002, Adoption.

CHAPTER 4, RESIDENTIAL ENERGY EFFICIENCY

Chapter 1, ADMINISTRATION

Amend Sections R101.2 and C101.2 Scope by adding:

Exception: Group R-2 occupancies to be able to comply with either the residential or commercial requirements of the Energy Code.

(Amended Ord. No. 2013-19, August 27, 2013)

Add the following amendments to Chapter 4:

Amend Section 402.1.1 by adding:

Insulation values in 2x6 wall construction will remain the same at R-19.

Exception: Insulation values in existing 2x4 wall construction will remain at R-15 (high density).

(Amended Ord. No. 2011-12, July 19, 2011)

Amend Section 403 by adding:

Section 403.1.2 All new construction and replacement heating units (optional for hydronic in-floor heating systems) will have Programmable thermostats.

(Amended Ord. No. 2011-12, July 19, 2011)

Section 403.7 Furnaces: All furnaces installed in new construction shall be 90% condensing type furnaces.

Exception: Replacement furnaces are to be voluntarily 90% condensing type furnaces.

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(Amended Ord. No. 2011-12, July 19, 2011)

Section 403.11 All newly installed toilets must be "high efficiency toilets" (HET) units which have a maximum of 1.3 gallons for solids. (Special attention to this change needs to be addressed by suppliers and home improvement centers which stock the older style units).

(Amended Ord. No. 2011-12, July 19, 2011)(Amended Ord. No. 2013-19, August 26, 2013)

Section N1105.10 Dual Plumbing. All new residential single family detached units are "voluntarily" requested to install the piping only for dual plumbed for "gray water" disposal and conservation efforts. Access for future valving must be provided and the initial installation will be connected to sanitary sewer. The piping shall be installed in accordance Appendix C, Gray Water Recycling Systems, of the International Plumbing Code, 2009 Edition, and the regulations established by ADEQ. Reference Type 1 General Permit Best Management Practices for the 13 points of using gray water, at www.adeq.state.az.us or call at 1-800-234-5677.)

(Amended Ord. No. 2011-12, July 19, 2011)

CHAPTER 5 COMMERCIAL ENERGY EFFICIENCY

Amend Section 505.5 by deleting in its entirety.

(Amended Ord. No. 2013-19, August 26, 2013)

Amend Sections 505.6.1 through 505.6.2 by deleting in their entirety and replace with:

City of Flagstaff has an exterior lighting permit requirement, enforces a "Dark Sky Ordinance" and requires review by zoning enforcement and the Project Management Section prior to installation. Lumen calculations are required and amounts are limited by property size and use.

(Amended Ord. No. 2007-47, 12/18/2007; Amended Ord. 2007-48, 01/15/2008; Amended Ord. No. 2009-06, 07/18/2009; Amended Ord. No. 2011-12, July 19, 2011)

BUILDING CODE AMENDMENTS SUMMARY

<u>AMENDMENT</u>	<u>PURPOSE</u>	<u>COST</u>
2018 INTERNATIONAL BUILDING CODE (IBC)		
<u>NEW PROPOSED AMENDMENTS</u>		
IBC 101.2.1, Appendices	Appendices are not enforceable unless specifically adopted. Amendment adopts Appendix N - Replicable Buildings. This appendix provides guidelines for replicable buildings to streamline plan review in regard to code compliance.	None
IBC 105.1.1 through 105.1.7, 105.1.7.1, Annual permits	Amend IBC language to define and detail the requirements and processes regarding Annual Permits	None
IBC Section 429, 429.1/Table 429.1, Electric Vehicle (EV) Charging	Addresses CAAP Action ID TLU-3-D. Requires EV-ready parking spaces to commercial structures with parking lots providing 20 or more parking spaces.	Varies, \$2050 - 11,400
IBC 1102.1, Design (accessibility)	This amendment clarifies that the 2017 edition of the A117.1 is the governing code for accessibility as opposed to the 2009 edition contained in the referenced standards section of the IBC.	None
IBC 1404.3.1, Vapor retarders (wall coverings)	The purpose is to remove the requirement for Class I and II vapor retarders on the interior side of framed exterior walls in Climate Zone 5. Alignment with Coconino County, see separate explanation/reason.	None
IBC 1505.4, Class C roof assemblies	Not previously amended. Existing amendment to IBC 1506.3 excludes roofing materials other than Class A or B. Class C roofing assemblies have limited effectiveness on light fire-test exposure. This amendment removes Class C roof assemblies from the code.	None
IBC 1505.5, Nonclassified roofing	Not previously amended. Existing amendment to IBC 1506.3 excludes roofing materials other than Class A or B. Nonclassified roofing assemblies have no listing for any fire-test exposure. This amendment removes nonclassified roof assemblies from the code.	None
IBC 2308.1.1 Allowable girder spans, 2308.4.2.1 Span, 2308.7.1 Ceiling joist spans, 2308.7.2 Rafter spans	This amendment adds the Western Lumber Span Tables for Floor and Ceiling Joists and Roof Rafters as additional reference to the span tables and referenced standard (American Wood Council span tables) included in the standard text. These standard references do not include tables for the locally amended 60 psf ground snow load.	None

IBC Table 1607.1, Minimum uniformly distributed live loads and minimum concentrated live loads	The amendment increases the minimum live load from 30 to 40 psf for habitable attics and sleeping rooms. These areas often occur on a floor level where other habitable spaces are designed at a minimum of 40 psf. It makes sense to maintain an consistent live load factor and it is common engineering practice.	None
<u>NEW REQUIRED AMENDMENT</u>		
IBC 1608.2, Ground snow loads	This amendment defines the ground snow load (GSL) for use in structural design. The standard code text refers to Figure 1608.2, a map where the City of Flagstaff is located in a "case study" (CS) area. The standard text explains these areas require a case study to determine GSL. A study conducted by NAU for Coconino County recommended a GSL of 70 psf for areas including the City of Flagstaff boundary. The Building and Fire Code Board of Appeals recommended a 60 psf GSL.	None
IBC 1612.3, Establishment of flood hazard areas	The IBC requires that the jurisdiction insert the date of the Flood Insurance Study / FEMA Flood Insurance Rate Map (FIRM)/ Flood Boundary and Floodway Map (FBFM).	None
<u>EXISTING AMENDMENT WITH REVISIONS</u>		
IBC 103.1, Creation of enforcement agency	To designate Building Safety Program as the regulating office. Language edited to reflect correct Section and Program names.	None
IBC 104.7, Department records	To more thoroughly define the records kept by the building official. Previous amendment contains "or" between each record and has been revised to "and" to correctly reflect the records kept by the building official.	None
IBC 105.1, Required (permits)	To include that an Over-the-Counter Permit is required for portable equipment used in public events (i.e. electrical generators over 25kW)	None
IBC 105.2, Work exempt from permit	To clarify specific items that are exempt from a building permit require Minor Improvement Permits per the Flagstaff Zoning Code. Language revised for clarity	None
IBC 105.5, Expiration	To change the expiration time periods. The language has been revised to clearly reflect time periods (example: 720 days revised to 730 days)	None

IBC 107.1, General (submittal documents)	To clarify Arizona State Statutes that govern when a registrant is required. Language has been relocated to IBC amendments (vs. previous location in administrative section of adoption document) for ease of use and reorganized for clarity.	None
IBC 109.2, Schedule of permit fees	To define the document that fees are based on. Language revised to reflect the most current city resolution and correct regulating office.	None
IBC 109.5, Related fees	has been relocated to IBC amendments (vs. previous location in administrative section of adoption document) for ease of use and	None
IBC 109.6, Refunds	To define the refund policy. Language revised to reflect that plan review fee is not refundable (services performed).	None
IBC 113.1, General (Board of Appeals)	To clarify that the Title 2 of Flagstaff City Code is the governing code for a board of appeals. Language revised to reference city code.	None
IBC Appendix J - Grading: J104.5, Stormwater requirements	This amendment has been updated by Water Services Stormwater Section to reflect the current Stormwater regulations related to building construction.	None
EXISTING AMENDMENT IN CURRENT CODE TO CARRY FORWARD		
IBC 101.2.1, Appendices	Appendices are not enforceable unless specifically adopted. Adopt Appendix C - Group U Agricultural Buildings, Appendix I - Patio Covers, Appendix J - Grading	None
IBC 109.4, Work commencing before permit issuance	To define the monetary penalty for commencing work prior to issuance of a building permit.	None
IBC 111.3, Temporary occupancy	To define that residential occupancies may not receive a temporary certificate of occupancy and exceptions.	None
IBC 1506.3, Product identification (materials, roof assemblies)	Purpose of this amendment is to exclude roofing materials other than Class A (severe) and B (moderate). Class C and nonclassified materials have limited or no effectiveness in fire-test exposure.	None
IBC 1507.8, Wood shingles	The City of Flagstaff has high potential for fire hazard. The purpose of this amendment is to exclude wood shingles as a roofing material.	None
IBC 1507.9, Wood shakes	The City of Flagstaff has high potential for fire hazard. The purpose of this amendment is to exclude wood shakes as a roofing material.	None
EXISTING AMENDMENT IN CURRENT CODE NOT CARRIED FORWARD		
IBC Section 202, Definitions	Several definitions have been addressed in the 2018 edition or have been deemed irrelevant.	None

IBC 509.1,	This amendment appears to have been incorrectly applied to Section 509 Incidental Uses. Tenant spaces are not considered incidental uses. Tenant space separation is addressed in Section 402 Covered Mall and Open Mall Buildings in both the 2012 and 2018 editions of IBC, specifically 402.4.2.1	None
IBC 1805.2, 1805.4, 1805.4.1, Table 1805.4.2, and 1805.5.2.2	These amendments appear to incorrectly reference Section 1805 Dampproofing and Waterproofing and were possibly intended for Section 1809 Shallow Foundations. These amendments revised the requirements for footing size and reinforcement , mirroring requirements for foundations in Seismic Category D.	Savings, varies on size of structure
IBC Section 3109, Swimming Pool Enclosures and Safety Devices	The amendment referenced the Arizona Revised Statutes (ARS) concerning swimming pool enclosures. This section has been revised in the 2108 edition to reference the 2018 International Swimming Pool & Spa Code (ISPSC) which the City proposes to adopt. Amendments are proposed to align with the ARS.	None
IBC Appendix B - Board of Appeals	Incorrectly and possibly inadvertently adopted. Another amendment the 2012 IBC adoption referenced a City of Flagstaff Ordinance governing the Board of Appeals.	None
2018 INTERNATIONAL RESIDENTIAL CODE (IRC)		
<u>NEW PROPOSED AMENDMENT</u>		
IRC R102.5, Appendices	Appendices are not enforceable unless specifically adopted. This amendment adopts Appendix Q - Tiny houses, Appendix R - Light straw clay construction, Appendix S - Strawbale construction, Appendix T - Solar-ready provisions	None
IRC R106.1, R106.1.5	This amendment creates new subsection for Model Plans. While model plan review has been offered prior to 2018 code adoption, the amendment solidifies this policy.	None
IRC Table 301.5, Minimum uniformly distributed live loads	The amendment increases the minimum live load from 30 to 40 psf for habitable attics and sleeping rooms. These areas often occur on a floor level where other habitable spaces are designed at a minimum of 40 psf. It makes sense to maintain an consistent minimum design live load and it is common engineering practice.	None

IRC R302.13, Fire protection of floors	The section requires fire protection of floor assemblies on the underside. The amendment adds an exception for crawl spaces containing heating appliances. See additional info at end of summary.	None
IRC R303.4, Mechanical ventilation	This amendment changes the requirement of mechanical ventilation (where the air infiltration rate is 5 air changes per hour or less) from mandatory to optional. In the energy efficiency section chapter of the IRC, a dwelling in Climate Zone 5 must be tested to be not exceed than 3 air changes per hour, thereby automatically requiring all dwellings in the City of Flagstaff to require a whole-house mechanical ventilation system.	None
IRC R313.2, One- and two-family dwellings automatic fire sprinkler systems	This amendment states the Arizona Revised Statutes prohibits any jurisdiction from mandating the installation of fire sprinklers in one- and two-family dwellings. The removal of this section does not prohibit one from installing a system if desired.	None
IRC R502.3, Allowable joist spans	This amendment adds the Western Lumber Span Tables for Floor and Ceiling Joists and Roof Rafters as additional reference to the span tables and referenced standard (American Wood Council span tables) included in the standard text. These standard references do not include tables for the locally amended 60 psf ground snow load.	None
IRC R502.3.1, Sleeping areas and attic joists	This amendment coordinates with the amendment to required Table R301.5 for minimum uniformly distributed live load in sleeping areas.	None
IRC R507.5, Deck beams	This amendment adds the Western Lumber Span Tables for Floor and Ceiling Joists and Roof Rafters as additional reference to the span tables and referenced standard (American Wood Council span tables) included in the standard text. These standard references do not include tables for the locally amended 60 psf ground snow load.	None
IRC R507.6, Deck joists	This amendment adds the Western Lumber Span Tables for Floor and Ceiling Joists and Roof Rafters as additional reference to the span tables and referenced standard (American Wood Council span tables) included in the standard text. These standard references do not include tables for the updated 60 psf ground snow load.	None
IRC R507.9.2, Lateral connection	This amendment adds an exception for lateral load connectors on decks with walking surfaces under 30 inches above adjacent grade.	None

IRC R702.7, Vapor retarders (interior wall covering)	The purpose of the amendment is to remove the requirement for Class I and II vapor retarders on the interior side of framed exterior walls in Climate Zone 5. Alignment with Coconino County, see separate explanation/reason.	None
IRC R802.4.1, Rafter size	This amendment adds the Western Lumber Span Tables for Floor and Ceiling Joists and Roof Rafters as additional reference to the span tables and referenced standard (American Wood Council span tables) included in the standard text. These standard references do not include tables for the locally amended 60 psf ground snow load.	None
IRC P2602.1, General (individual water supply and sewage disposal)	This amendment clarifies that private sewage disposal systems (septic tanks) are under the jurisdiction of Coconino County Environmental Quality.	None
IRC P2903.2, Maximum flow rates and consumption for plumbing fixtures and fixture fittings	This amendment changes the water consumption value for water closets (toilets) lowering the value from 1.6 gpf to 1.3 gpf. This component of the proposed amendment appeared in the amendments to the 2012 International Plumbing Code Table 604.4. It is believed the intent was to apply the amendment to the 2012 IRC as well. The 2018 proposed amendment includes language for dual flush toilets for clarity.	None
IRC E3901.9, Basements, garage and accessory buildings (receptacle outlets)	Addresses CAAP Action ID TLU-3-D. The standard code text requires an electrical receptacle for each vehicle bay in all new attached and detached garages with electrical power. The amendment requires at least one of these required receptacles to be an electric vehicle charging outlet. An exception for additions and alterations to existing construction is also included.	\$300-500
IRC Appendix T, T101.1, General	This amendment requires new construction to comply with this appendix.	None
IRC Appendix T, T103.6, Capped roof penetration sleeve	This amendment removes the requirement for a capped roof penetration sleeve.	None
IRC Appendix T, T103.8, Interconnection pathway	This amendment removes the requirement for an interconnection pathway.	None
IRC Appendix T, T103.9, Electrical service reserved space	This amendment revises the requirement for reserved space in the electrical service panel for future solar photovoltaic installation based on feasibility.	None

<u>NEW REQUIRED AMENDMENT</u>		
IRC Table R301.2(1), Climatic and Geographic Design Criteria	Adopting jurisdictions are required to populate this table with the corresponding information from a series of resources and referenced material included in the standard text. A flood map date has been revised per the City's Stormwater Section. The standard code text refers to Figure R301.2(6), a map where the City of Flagstaff is located in a "case study" (CS) area. The standard text explains these areas require a case study to determine GSL. A study conducted by NAU for Coconino County in 2016 recommended a GSL of 70 psf for areas including the City of Flagstaff boundary. The Building and Fire Code Board of Appeals recommended a 60 psf GSL.	None
<u>EXISTING AMENDMENT WITH REVISIONS</u>		
IRC R103.1, Creation of enforcement agency	To designate Building Safety Program as the regulating office. Language edited to reflect correct Section and Program names. Language has been relocated to IRC amendments (vs. previous location in administrative section of adoption document) for ease of use.	None
IRC R104.7, Department records	To more thoroughly define the records kept by the building official. Previous amendment contains "or" between each record and has been revised to "and" to correctly reflect the records kept by the building official. Language has been relocated to IRC amendments (vs. previous location in administrative section of adoption document) for ease of use.	None
IRC R105.1, Required (permits)	To include language regarding the authority having jurisdiction over manufactured housing permits. The City of Flagstaff has an intergovernmental agreement (IGA) with the Arizona State Office of Manufactured Housing for inspection. Language has been relocated to IRC amendments (vs. previous location in administrative section of adoption document) for ease of use.	None

IRC R105.2, Work exempt from permit	To clarify specific items that are exempt from a building permit require Minor Improvement Permits per the Flagstaff Zoning Code. Language revised for clarity. Language has been relocated to IRC amendments (vs. previous location in administrative section of adoption document) for ease of use.	None
IRC R105.5, Expiration	To change the expiration time periods. The language has been revised to clearly reflect time periods and to extend permit validity for larger structures. Language has been relocated to IRC amendments (vs. previous location in administrative section of adoption document) for ease of use.	None
IRC 106.1, Submittal documents	To clarify Arizona State Statutes that govern when an Arizona Registered Design Professional (architect, engineer) is required. Language has been relocated to IRC amendments (vs. previous location in administrative section of adoption document) for ease of use and reorganized for clarity.	None
IRC R108.2, Schedule of permit fees	To define the document in which fees are based. Language revised to reflect the most current city resolution and correct regulating office. Language has been relocated to IRC amendments (vs. previous location in administrative section of adoption document) for ease of use.	None
IRC R108.5, Refunds	To define the refund policy. Language revised to reflect that plan review fee is not refundable (services performed). Language has been relocated to IRC amendments (vs. previous location in administrative section of adoption document) for ease of use.	None
IRC 112.1, General (Board of Appeals)	To clarify that the Title 2 of Flagstaff City Code is the governing code for a board of appeals. Language revised to reference city code. Language has been relocated to IRC amendments (vs. previous location in administrative section of adoption document) for ease of use.	None
IRC Section R202, Definitions	Several definitions have been addressed in the 2018 edition or have been deemed irrelevant. Definition of ADU revised to reflect its source in the Flagstaff Zoning Code.	None
IRC R401.4.1, Geotechnical evaluation	This amendment waives the requirement for a geotechnical investigation in specified circumstances and prescribes a soil bearing pressure value for a basis for foundation design.	None

IRC N1102.1.2, Insulation and fenestration criteria	This amendment adds an exterior wall insulation value for 2x4 wood framed walls and adds a footnote to make an exception for the U-value of windows used in an approved passive solar design.	None
IRC M2005.1, General (water heaters)	This amendment clarifies that water heaters shall be capable of being removed without first removing any other appliance or a permanent portion of the building. This amendment was included in the 2012 adoption with slightly different language but only amending the International Mechanical Code (IMC; 1002.1). The same section appears in 2012 IRC but was not amended. It is believed that the intent was to apply to amendment to IRC as well.	None
IRC P3103.1.1, Roof termination (vents)	This amendment revises the vent termination distance above the roof surface to 12 inches. Language was revised from previous adoption amendment for clarity.	None
<u>EXISTING AMENDMENT IN CURRENT CODE TO CARRY FORWARD</u>		
IRC R102.5, Appendices	Appendix F - Radon Control Methods, Appendix H - Patio Covers, Appendix J - Existing Buildings and Structures, Appendix M - Home Day Care, R-3 Occupancy	None
IRC 108.4, Related fees	To include fees for re-inspection under specific circumstances. Language has been relocated to IRC amendments (vs. previous location in administrative section of adoption document) for ease of use and reorganized for clarity. IRC Section number changed from the 2012 edition.	None
IBC 108.6, Work commencing before permit issuance	To define the monetary penalty for commencing work prior to issuance of a building permit.	None
IRC R110.4, Temporary occupancy	To define that residential occupancies may not receive a temporary certificate of occupancy and exceptions.	None

IRC R309.5, Fire sprinklers (garages and carports)	The amendment deletes the requirement for fire sprinklers in residential garages and carports and is in alignment with Arizona Revised Statutes which prohibits any jurisdiction from mandating the installation of fire sprinklers in one- and two-family dwellings. However, the removal of this section does not prohibit one from installing a system if desired.	None
IRC R904.3, Material specifications and physical characteristics (materials, roof assemblies)	Purpose of this amendment is to exclude roofing materials other than Class A (severe) and B (moderate). Class C and nonclassified materials have limited or no effectiveness in fire-test exposure.	None
IRC R905.7, Wood shingles	The City of Flagstaff has high potential for fire hazard. The purpose of this amendment is to exclude wood shingles as a roofing material.	None
IRC R905.8, Wood shakes	The City of Flagstaff has high potential for fire hazard. The purpose of this amendment is to exclude wood shakes as a roofing material.	None
IRC N1103.7, Equipment sizing and efficiency rating (mandatory)	This amendment adds the requirement for 90% condensing type furnaces to all new construction.	None
IRC G2445, Unvented room heaters	This amendment deleted unvented room heaters completely, effectively prohibiting their use. Unisource, the local natural gas utility, confirmed with Building Safety staff that they will not allow service connection to a building equipped with unvented fuel-gas appliances.	None
IRC P2603.5.1, Sewer depth	This amendment clarifies that private sewage disposal systems (septic tanks) are under the jurisdiction of Coconino County Environmental Quality and that building sewers connecting to City of Flagstaff sewage disposal system shall be located a minimum of 12 inches below grade.	None
IRC Appendix M, AM101.1, General (home day care)	This amendment clarifies that a Home Occupation Permit is required for this use prior to issuance of a building permit.	None
<u>EXISTING AMENDMENT IN CURRENT CODE NOT CARRIED FORWARD</u>		
IRC R403.1/Table R403.1, R403.1.1, R403.1.2, R403.1.3, R403.1.3.1, R403.3, R404.1.1, R404.1.2, R404.1.4, R404.1.8, R404.1.4, and R407.3 - pertaining to footings and foundation walls	These amendments effectively reclassified the City of Flagstaff from Seismic Category C to Seismic Category D, requiring larger footings (= more concrete), additional steel reinforcement in footings and masonry foundation stem walls, and additional anchoring hardware in foundation walls or concrete slabs.	Savings, varies per structure size, \$12,000 for a 2,600 SF single family dwelling

IRC R602.5, Interior non load bearing walls	This amendment added to specifications for ladder backing installation in interior non bearing walls.	None
IRC N1102.1.2, R-value computation	This amendment added language which revised the U-factor for windows and specified usage of low-e glazing. This is inconsistent with the concurrently adopted 2009 IECC which did not modify this U-value.	None
IRC N1105	The amendment voluntarily requested that new single family dwellings have a piping only installation for grey water system. The 2018 IPC and IRC contain provisions for (voluntary) installation of grey water (non-potable water) systems.	None
IRC M1305.1.4.3, Electrical requirements (appliances under floors)	The amendment added language to specify that furnaces are to be hard-wired with unless equipped with manufacturer supplied with cord and cap. The Section M1303 covers listing and labeling and requires installation per the listing and label. This amendment was also under underfloor appliances, making it enforceable in only these locations.	None
IRC M1307.3.1, Protection from impact	This amendment references another amendment which is not carried over. See G2408.3 below. The standard text of 2018 IRC addresses protection from impact.	None
IRC M1507.1, M1507.3	This amendment removes from the code whole-house ventilation systems as an option.	None
IRC G2408.3, Private garages	This amendment deleted the standard text which requires appliances installed in a private garage to be located a minimum of 6 feet above the floor unless the appliance is protected from vehicle damage. It was replaced with language detailing examples of vehicle damage protection. The standard text is identical in the 2012 and 2018 IFGC. Since the standard text, through an exception, addresses protection from vehicle damage the amendment is not carried forward.	None

IRC G2417.4.1	This amendment modified the specifications in which pressure testing was conducted and referenced single family dwellings. There are provisions in the fuel-gas chapter in the IRC that cover the test pressure specifications.	None
IRC G2417.4.2	This amendment modified the specifications in which the duration of pressure testing was conducted and referenced single family dwellings. There are provisions in the fuel-gas chapter in the IRC that cover the test duration specifications.	None
IRC G2439.4	This amendment seems to remove the provision for makeup air for a clothes dryer located in a closet. Intent is unclear.	None
IRC P2904, Dwelling Unit Fire Sprinkler Systems	This amendment removed the entire section which contains provisions for the installation of fire sprinkler systems. The removal of mandatory installation fire sprinkler systems (per Arizona Revised Statutes) is located in the amendment to R313.2 above. This amendment to P2904 is not carried forward to allow the use of fire sprinkler systems is one chooses or if an property owner association requires (as is the case of Pine Canyon).	None
IRC Appendix G - Swimming Pool, Spas, and Hot Tubs	This appendix has been removed from the 2018 IRC. The IRC now referenced the ISPSC.	None
IRC Appendix O - Grey Water Recycling Systems	This appendix has been relocated to the standard text of the IRC and is no longer an appendix which requires specific adoption to enforce.	None
IRC Appendix R - Strawbale Construction	The amendment originally created code provisions for strawbale construction. The 2018 IRC contains Appendix S - Strawbale Construction, removing the necessity for this amendment to be carried over.	None
2018 INTERNATIONAL EXISTING BUILDING CODE (IEBC)		
<u>NEW PROPOSED AMENDMENT</u>		
IEBC 112.1, General (Board of Appeals)	To clarify that the Title 2 of Flagstaff City Code is the governing code for a board of appeals. Language revised to reference city code.	None
IEBC 301.5, Compliance with accessibility	This amendment clarifies that the 2017 edition of the A117.1 is the governing code for accessibility as opposed to the 2009 edition contained in the referenced standards section of the IBC.	None

IEBC 408.2, Water closet replacement	This amendment changes the water consumption value for water closets (toilets) replacements, lowering the value from 1.6 gpf to 1.3 gpf.	None
<u>NEW REQUIRED AMENDMENT</u>		
NONE.		
<u>EXISTING AMENDMENT WITH REVISIONS</u>		
IEBC 105.1, Required (permits)	Amendment references 2018 IBC and IRC (as amended) for building permit requirements.	None
IEBC 105.5, Expiration, (permits)	Amendment references 2018 IBC and IRC (as amended) for permit duration.	None
IEBC 1201.2, Heritage Preservation Commission	Amendment creates section to indicate that in specific areas of the City, the City's Heritage Preservation Officer and/or Heritage Preservation Commission shall review changes to historic structures and buildings prior to issuance of a building permit for those changes. Language revised for clarity.	None
<u>EXISTING AMENDMENT IN CURRENT CODE TO CARRY FORWARD</u>		
NONE.		N/A
<u>EXISTING AMENDMENT IN CURRENT CODE NOT CARRIED FORWARD</u>		
NONE.		N/A
2018 INTERNATIONAL MECHANICAL CODE (IMC)		
<u>NEWLY PROPOSED AMENDMENTS</u>		
NONE.		N/A
IMC 106.5.2, Fee schedule (permits)	Amendment references 2018 IBC (as amended) for building permit fees.	None
IMC 106.5.3, Fee refunds (permits)	Amendment references 2018 IBC (as amended) for building permit fee refunds.	None
IMC 108.4, Violation penalties (violations)	Amendment references 2018 IBC (as amended) for violation penalties.	None
IMC 108.5, Stop work orders (violations)	Amendment references 2018 IBC (as amended) for stop work orders.	None
<u>EXISTING AMENDMENT WITH REVISIONS</u>		
IMC 109.1, Application for appeal (Means of appeal)	To clarify that the Title 2 of Flagstaff City Code is the governing entity for a board of appeals. Language revised to reference city code.	None
<u>EXISTING AMENDMENT IN CURRENT CODE TO CARRY FORWARD</u>		

IMC 304.2, Conflicts (Installation)	This amendment determines that when there is a conflict between the code and the listing of a products manufacturer's specification, the manufacturer's specification shall apply.	None
IMC 903.3, Unvented gas log heaters (factory-built fireplaces)	This amendment states that unvented gas log heaters must obtain local gas utility approval and submission of this approval to the building official is required prior to a building permit being issued.	None
IMC 1002.1, General (Water heaters)	This amendment clarifies that water heaters shall be capable of being removed without first removing any other appliance or a permanent portion of the building.	None
<u>EXISTING AMENDMENT IN CURRENT CODE NOT CARRIED FORWARD</u>		
IMC 303.4, Protection from damage	This amendment added a reference to IFGC 305.5 for protection requirements. The amended IFGC 305.5 pertains to private garages.	None
IMC 304.6, Public garages	This amendment added provisions for appliances/equipment in private garages, yet section title is "public garages". The following section, IMC 304.7, in both 2012 and 2018 pertains to private garages.	None
IMC 306.1, Access for maintenance and replacement	This amendment added language for clarity however, the intent of the language is already captured in the standard text of this section in both 2012 and 2018 IMC.	None
IMC Section 928, 928.1 Unvented room heaters	This section did not exist in the 2012 IMC as indicated. In 2012 and 2018 IMC, Section 928 is titled Evaporative Cooling Systems. Nonetheless, the intent of this previous amendment is captured in the amendment to IMC 903.3	None
2018 INTERNATIONAL PLUMBING CODE (IPC)		
<u>NEW PROPOSED AMENDMENTS</u>		
IPC 109.1, Application for appeal, 109.2 through 109.7 (Means of Appeal)	To clarify that the Title 2 of Flagstaff City Code is the governing code for a board of appeals. Language revised to reference city code.	None
<u>NEW REQUIRED AMENDMENT</u>		
IPC 106.6.2, Fee schedule	Amendment references 2018 IBC (as amended) for building permit fees.	None
IPC 106.6.3, Fee refunds	Amendment references 2018 IBC (as amended) for building permit fee refunds.	None

IPC 305.4.1, Sewer depth	This amendment requires jurisdiction to determine the sewer depth for private sewage disposal systems (septic tank) and sewage disposal systems connecting to City's system. Language is included for private systems require Coconino County approval, as this jurisdiction determines depth.	None
IPC 903.1, Roof termination	This amendment requires jurisdiction to determine the vent termination distance above the roof surface. For City of Flagstaff this is 12 inches.	None
<u>EXISTING AMENDMENT WITH REVISIONS</u>		
IPC Table 604.4, Maximum flow rates and consumption for plumbing fixtures and fixture fittings	This existing amendment changed the water consumption value for water closets (toilets) lowering the value from 1.6 gpf to 1.3 gpf. Conflicting language in the online versions of the 2012 adoption/amendment document regarding urinals that appeared in an amendment to another section (see IPC 419.4) has been relocated to this amendment and clarified. Language added for dual flush toilets added for clarity even though referenced standards for dual flush toilets are included in the standard text.	None
<u>EXISTING AMENDMENT IN CURRENT CODE TO CARRY FORWARD</u>		
IPC 301.7, Conflicts	This amendment determines that when there is a conflict between the code and the listing of a products manufacturer's specification, the manufacturer's specification shall apply.	None
IPC 305.4, Freezing	This amendment revises the distance below grade in which plumbing pipes shall be located for freeze protection.	None
IPC 312.1, Required tests	This amendment removes "for piping systems other than plastic" from the fourth sentence to allow any type of pipe, regardless of material, to be tested with air. This is to allow testing to be done using air particularly in winter where testing with water may not be possible due to freezing temperatures.	None
IPC 312.3, Drainage and vent air test	This amendment deletes the first sentence: "Plastic piping shall not be tested using air." This is to allow testing to be done using air on all systems, including plastic, particularly in winter where testing with water may not be possible due to freezing temperatures. Standard practice for cold climates.	None

IPC 312.6, Gravity sewer test	This amendment removes the requirement for this test. This test has historically NOT been performed in Flagstaff and is difficult to achieve.	None
IPC 312.7, Forced sewer test	This amendment removes the requirement for this test. This test has historically NOT been performed in Flagstaff and is difficult to achieve.	None
IPC 703.7, Building sewer locating means	This amendment requires non-metallic sewer piping to be installed with tracer wire.	None
<u>EXISTING AMENDMENT IN CURRENT CODE NOT CARRIED FORWARD</u>		
IPC 301.3, Connections to drainage system	It appears that this amendment was not necessary as the language of the standard text of 2012 IPC is the same as the amendment. The 2018 IPC standard text is the same, with the exception of grey water and subsurface landscape irrigation are now referred to as "Chapters 13 and 14" where they are covered.	None
IPC 312.4, Drainage and vent final test	This amendment removed the requirement for this test. It is believed it was amended out because of the smoke test language. The smoke test language is included in the vent it is tested, it is not required. A visual test, as indicated in the first sentence of the section, is required and has been taking place in the field.	None
IPC 419.4, Urinals	The language of this amendment, to apply a maximum of one pint per flush for urinals, has been relocated to the appropriate section. See proposed amendment to IPC Table 604.4.	None
IPC 607.2, Hot or tempered water supply to fixtures	This amendment removed the limit on the developed length of water supply systems of hot or tempered water to 50 feet and requirement for a recirculation pump for systems over 50 feet in developed length. In 2018 IPC standard code text remains the same. For purposes of water conservation, this amendment has been not carried forward.	None
IPC Section 610 Disinfection of potable water system	This amendment removed the requirement for new and repaired potable water systems to be flushed ("purged of deleterious matter") and disinfected. As a matter of public health and safety, this amendment has not been carried forward.	None
IPC Appendix C - Grey water recycling systems	It appears that this amendment was not necessary in 2012 nor is it in 2018. In the 2012 and 2018 IPC, grey water recycling systems are included in Chapter 13, not as an appendix which requires a local amendment to adopt.	None
2018 INTERNATIONAL FUEL GAS CODE (IFGC)		

<u>NEW PROPOSED AMENDMENTS</u>		
IFGC 109.1, Application for appeal 109.2 through 109.7 (Means of Appeal)	To clarify that the Title 2 of Flagstaff City Code is the governing code for a board of appeals. Language revised to reference city code.	None
<u>NEW REQUIRED AMENDMENT</u>		
IFGC 106.6.2, Fee schedule	Amendment references 2018 IBC (as amended) for building permit fees.	None
IFGC 106.6.3, Fee refunds	Amendment references 2018 IBC (as amended) for building permit fee refunds.	None
<u>EXISTING AMENDMENT WITH REVISIONS</u>		
NONE.		
<u>EXISTING AMENDMENT IN CURRENT CODE TO CARRY FORWARD</u>		
IFGC 303.3, Prohibited locations	This amendment removes two exceptions to prohibited locations. These two exceptions contain provisions for unvented room heaters which are not permissible by the local gas utility. See amend to IFGC Section 621 below.	None
IFGC 403.4.3, Copper and copper alloy	This amendment prohibits the use of copper, copper, alloys in fuel-gas piping installations.	None
IFGC Section 621 Unvented room heaters	This amendment deletes unvented room heaters completely, effectively prohibiting their use. Unisource, the local natural gas utility, confirmed with Building Safety staff that they will not allow service connection to a building equipped with unvented fuel-gas appliances.	None
<u>EXISTING AMENDMENT IN CURRENT CODE NOT CARRIED FORWARD</u>		
IFGC 305.5, Private garages	This amendment deleted the standard text which requires appliances installed in a private garage to be located a minimum of 6 feet above the floor unless the appliance is protected from vehicle damage. It was replaced with language detailing examples of vehicle damage protection. The standard text is identical in the 2012 and 2018 IFGC. Since the standard text, through an exception, addresses protection from vehicle damage the amendment is not carried forward.	None

IFGC 406.4.1, Test pressure	This amendment modified the specifications in which pressure testing was conducted and referenced single family dwellings. There are provisions in the fuel-gas chapter in the IRC that cover the test pressure specifications.	None
IFGC 406.4.2, Test duration	This amendment modified the specifications in which the duration of pressure testing was conducted and referenced single family dwellings. There are provisions in the fuel-gas chapter in the IRC that cover the test duration specifications.	None
IFGC 614.5, Makeup air (clothes dryer exhaust)	This amendment removed the requirement for makeup air to be provided when an installation exhausting more than 200 cfm, leaving only the standard text which addresses installations in a closet. This seems to ignore installations in commercial laundromats and shared/common laundry rooms in hotels or apartment developments where multiple clothes dryers are likely to be installed.	None
2018 INTERNATIONAL ENERGY CODE (IECC)		
<u>NEW PROPOSED AMENDMENTS</u>		
IECC C101.2.1, Appendices	This amendment creates the typical Appendices section appearing in the other International Codes. The amendment also adopts Appendix CA - Solar Ready Zone - Commercial	None
IECC C109.1, General (Board of Appeals), C109.3	To clarify that the Title 2 of Flagstaff City Code is the governing code for a board of appeals. Language revised to reference city code.	None
IECC C202 General definitions	This amendment revises the definition of "residential building" to include R-2, R-3, and R-4 buildings three stories above concrete podium and without interior conditioned common entry/exit corridors. The revised definition also clarifies that when a residential building contains accessory common and/or commercial uses those portions are to comply with the commercial provisions of the IECC.	None
IECC CA101.1, General	This amendment requires new construction is to comply with this appendix.	None

IECC R101.2.1, Appendices	This amendment creates the typical Appendices section appearing in the other International Codes. The amendment also adopts Appendix RA - Solar Ready Zone - Residential	None
IECC R109.1, General (Board of Appeals), R109.3	To clarify that the Title 2 of Flagstaff City Code is the governing code for a board of appeals. Language revised to reference city code.	None
IECC R202, General Definitions	This amendment revises the definition of "residential building" to include R-2, R-3, and R-4 buildings three stories above concrete podium and without interior conditioned common entry/exit corridors. The revised definition also clarifies that when a residential building contains accessory common and/or commercial uses those portions are to comply with the commercial provisions of the IECC.	None
IECC RA101.1, General	This amendment requires new construction is to comply with this appendix.	None
IECC RA103.6, Interconnection pathway	This amendment removes the requirement for an interconnection pathway	None
IECC RA103.7, Electrical service reserved space	This amendment revises the requirement for reserved space in the electrical service panel for future solar photovoltaic installation based on feasibility.	None
<u>NEW REQUIRED AMENDMENT</u>		
NONE.		
<u>EXISTING AMENDMENT WITH REVISIONS</u>		
IECC R402.1.1, Insulation and fenestration criteria	This amendment adds an exterior wall insulation value for 2x4 wood framed walls and adds a footnote to make an exception for the U-value of windows used in an approved passive solar design.	None
<u>EXISTING AMENDMENT IN CURRENT CODE TO CARRY FORWARD</u>		
IECC R403.7, Equipment sizing and efficiency rating (mandatory)	This amendment adds the requirement for 90% condensing type furnaces to all new construction.	None
<u>EXISTING AMENDMENT IN CURRENT CODE NOT CARRIED FORWARD</u>		
C101.2 and R101.2, Scope	The section numbers cited in the amendment do not exist in the 2009 IECC. This amendment created an exception to allow R-2 occupancies (which include uses such as apartment buildings and hotels) to comply with either the commercial or residential provisions of the IECC. The 2009 and 2018 IECC definition of "residential building" includes R-2 occupancies three stories or less in height.	None

403.1.2	This amendment required the installation of programmable thermostats in new construction and replacement heating units. The use of programmable thermostats is mandatory in the 2018 IECC residential provisions.	None
403.11	This amendment required the installation of height efficiency toilets with a maximum 1.3 gpf. There are current amendments to the 2012 edition and proposed amendments to the 2018 IPC and IRC specifying this water consumption limit.	None
N1105.10	The section number cited does not exist in the 2009 IECC. The amendment voluntarily requested that new single family dwellings have a piping only installation for grey water system. The 2018 IPC and IRC contain provisions for (voluntary) installation of grey water (non-potable water) systems.	None
505.5, Interior lighting power requirements (prescriptive; commercial)	This amendment deleted this section.	None
505.6.1 and 505.6.2, Exterior lighting power	The amendment deleted this standard text and replaced with a reference to the City's dark sky ordinance, thereby removing any power consumption standards. Removal of the dark sky ordinance does not remove its requirement as it is contained within the Flagstaff Zoning Code. All commercial projects are reviewed by Current Planning at the time of building permit application/plan review for compliance with the dark sky lighting ordinance.	None

2018 INTERNATIONAL SOLAR ENERGY PROVISIONS (ISEP)

NEW PROPOSED AMENDMENTS

Note: The 2018 ISEP is a compilation of all solar energy provisions found throughout the 2018 International Codes (IBC, IRC, IECC, IMC, IPC, IFC, and ISPSC). As such, each code section contained within this document is also identified by its corresponding section number from the original International Code source. Amendments to any section from the source codes, including the 2018 International Fire Code (IFC) as adopted under Flagstaff City Code, Title 5, shall apply to the 2018 ISEP.

N/A

NEW REQUIRED AMENDMENT

See note above, under "new proposed amendments".		N/A
<u>EXISTING AMENDMENT WITH REVISIONS</u>		
NONE. NOT APPLICABLE.		N/A
<u>EXISTING AMENDMENT IN CURRENT CODE TO CARRY FORWARD</u>		
NONE. NOT APPLICABLE.		N/A
<u>EXISTING AMENDMENT IN CURRENT CODE NOT CARRIED FORWARD</u>		
NONE. NOT APPLICABLE.		N/A
2018 INTERNATIONAL SWIMMING POOL AND SPA CODE (ISPSC)		
<u>NEW PROPOSED AMENDMENTS</u>		
ISPSC 108.1, Application for appeal (Means of Appeal)	To clarify that the Title 2 of Flagstaff City Code is the governing code for a board of appeals. Language revised to reference city code.	None
ISPSC 202, Definitions	This amendment revises the definition of "residential swimming pool" in accordance with the Arizona Revised Statutes definition (18 inch depth compared to 24 inch depth)	None
ISPSC 305.2.1, Barrier height and clearances	This amendment revises the barrier height requirement in accordance with the Arizona Revised Statutes definition (48 inch height compared to 60 inch height)	None
<u>NEW REQUIRED AMENDMENT</u>		
NONE.		N/A
<u>EXISTING AMENDMENT WITH REVISIONS</u>		
NONE. NOT APPLICABLE.		N/A
<u>EXISTING AMENDMENT IN CURRENT CODE TO CARRY FORWARD</u>		
NONE. NOT APPLICABLE.		N/A
<u>EXISTING AMENDMENT IN CURRENT CODE NOT CARRIED FORWARD</u>		
NONE. NOT APPLICABLE.		N/A
2017 NATIONAL ELECTRICAL CODE (NEC)		
<u>NEW PROPOSED AMENDMENTS</u>		
<u>NONE.</u>		N/A
<u>NEW REQUIRED AMENDMENT</u>		
NONE.		N/A
<u>EXISTING AMENDMENT WITH REVISIONS</u>		
NONE.		N/A
<u>EXISTING AMENDMENT IN CURRENT CODE TO CARRY FORWARD</u>		

NEC Article 110.5, Conductors	This amendment specifies the use of copper for conductors carrying current and places limitations on the use of aluminum wire.	None
NEC Article 110.7, Wiring integrity	This amendment adds the requirement for high-potential (hi-pot) voltage testing on installation of 1000 amperes and greater.	None
NEC Article 210.5, Identification of branch circuits	This amendment specifies a wiring identification method based on common industry practice. The NEC does not specify color coding for different voltage systems.	None
EXISTING AMENDMENT IN CURRENT CODE NOT CARRIED FORWARD		
NEC Article 110.2	This amendment required that all electrical conductors, components, material, and equipment to be listed and labeled (for their use). The 2017 NEC contains standard language requiring listing and labeling.	None

Additional information:	
<p>IBC 1404.3.1: Class I vapor retarders include polyethylene and the standard is 4-mil poly. This material does qualify as not exceeding 1 perm (permeability) but only in a gaseous state. Once the vapor (gas) is transmitted from the cold to the warm side (insulated wall) the gas vapor condenses to liquid (water), which causes mold and rot. Class II vapor retarders include kraft-faced fiberglass batt insulation and we mainly experience un-faced batt insulation or spray-foam insulation being used in the county. A Class III vapor retarder can be used in lieu of Class I and II when continuous insulation is used in the wall cavity. This is required by code so in essence only Class III vapor retarders should be required on the warm in winter side. The most common Class III vapor retarder is latex or enamel paint.</p>	<p>IRC R302.13: This code section does not differentiate between basements or crawl spaces and the different hazards associated between the two. During the 2007 Minneapolis Code Hearings this code proposal was presented by the Fire Service and the entire presentation represented structures with full basements with open web floor trusses. Basements are quite different from crawl spaces and even though this code section includes crawl spaces that contain fuel-fired or electric-powered furnaces the dangers to firefighting personnel is not the same. The City of Flagstaff, along with Coconino County, would like to exempt crawl spaces that do not exceed 48-inches from grade to underside of floor with having to have gypsum board (or other material permitted as defined in code section) applied to the floor system. The other determining factor that is overlooked is that basements do not receive insulation in the joist cavities whereas crawl spaces do. A trade off option of the gypsum board in this section of code allows mineral wool to be placed along the webs of I joists to protect it from fire degradation. Joist cavities that are fully insulated would provide even better fire protection of the floor support system.</p>

IRC R507.9.2: This code provision, which requires a minimum of (2) 1,500lb lateral hold-down connections within 24-inches of each end of the deck, relates to the hazards of deck collapses associated with unanticipated lateral loads. There is a potential danger to decks with walking surface 30 inches and greater above grade (walking surfaces adjacent to grade changes 30 inches or greater do not require fall protection in the form of guards and are exempt from building permits) so proposes to exempt the (2) lateral connections on decks with walking surfaces that do not exceed 30 inches above grade. This proposed exemption does not prohibit the installation of lateral load connections if one chooses.



2018 Building and Fire Code Adoption and Amendments

City Council
Work Session
May 14, 2019

Amy Palmer – Building Official
Victoria St. Clair – Building Plans Examiner
Jerry Bills – Deputy Fire Chief



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How often does the City of Flagstaff adopt building model codes?

The International Code Council (ICC), a developer and publisher of model codes, is on a 3-year code update cycle, however, the City of Flagstaff has opted to adopt the model codes every other cycle, or every 6 years.

The last code adoption occurred in 2013 when the City of Flagstaff adopted the 2012 International Codes.



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What code editions will be adopted?

Flagstaff City Code - 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 and Spa Code (ISPSC)*
2017 NFPA 70 - National Electrical Code (NEC)
A117.1-2017 Standard for Accessible and Useable Buildings and Facilities

Flagstaff City Code - Title 5: Fire Code

2018 International Fire Code (IFC)

* = New to City of Flagstaff; others are currently adopted under an older code cycle



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Why adopt the most recent codes?

- Improve health, reduce emissions, create jobs
- Protect public health, safety, and welfare
- Energy and cost savings can be significant
- Provide consistent minimum standards in construction
- Protect consumers and support grid reliability
- Contribute to the well-being of the community
- Help control or lower cost of insurance premiums

****Codes are effective only if they are enacted into law and enforced by state and local governments****



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Code Updates vs. Local Amendments

Update

- Generated by the code publisher through code hearing process
- Addresses new technology, clarifications or modifications to existing code sections

Local Amendment

- Generated by the adopting jurisdiction
- Reflect local practices and laws
- Unique site conditions affecting foundation design or applied snow loads



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Public Outreach

Target audience: Design community (architects, engineers, home designers), contractors, any interested community members

Advertising

- Posters & flyers
 - Flagstaff City Hall / Building Safety website
 - Coconino County / Building Safety website
 - Local businesses: home improvement center, coffee shop bulletin boards
 - Social media
 - Inspection staff handout to subcontractors
 - Northern Arizona Builders Association (NABA)
- Radio interview at KAFF January 25, 2019



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Public Outreach: Training Sessions

07/25/2018: IRC - **33** attendees

08/09/2018: IRC - **53** attendees

08/22/2018: IBC + IEBC – **34** attendees

09/13/2018: IECC + ISEP – **18** attendees

10/03/2018: IPC + IFGC – **24** attendees

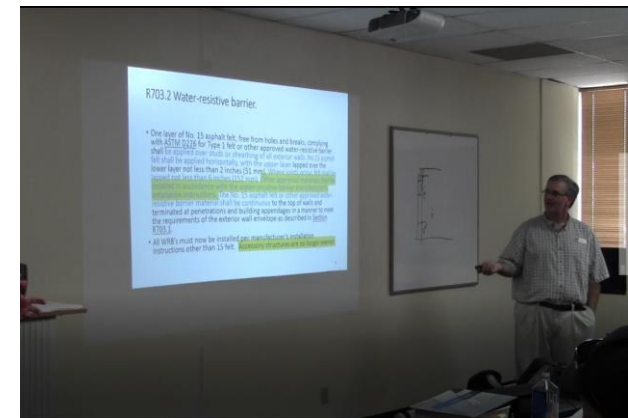
10/18/2018: NFPA 70/NEC – **16** attendees

11/04/2018: IMC + ISPSC – **15** attendees

12/13/2018: IFC – **35** attendees

01/30/2019: IRC – **17** attendees

03/07/2019: IECC **12** attendees



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Public Outreach: Open House

Open discussion and questions

02/05/2019: Murdoch Center – **10** attendees

02/07/2019: Aquaplex – **8** attendees

PUBLIC OPEN HOUSES FOR UPDATES TO CITY OF FLAGSTAFF BUILDING AND FIRE CODES

What

The City of Flagstaff is in the process to replace the 2012 International Code Council (ICC) model building and fire codes with the 2018 editions. The goal is to have City Council adopt the new codes with local amendments in May of 2019.

Both Open Houses will be the same format. Come and go as your schedule allows. Building Safety and Fire Department staff will be organized around the room by topic, ready to answer questions, clarify code language, and take your comments.

Copies of the current code editions (2012), proposed code editions (2018), and current and proposed amendments will be available for reference. The current and proposed amendments are also available to view and make comments online: <https://www.flagstaff.az.gov/494/Building-Safety>.



When and Where

Tuesday, February 5, 2019; 11 a.m. to 1 p.m.
@ Murdoch Community Center (203 E Brannen Ave)

and
Thursday, February 7, 2019; 4 p.m. to 6 p.m.
@ The Flagstaff Aquaplex (1702 N Fourth St)

Why

There are several benefits to updating the building & fire codes:

- 2018 is the most current code available
- Improve life safety and welfare of the public
- Improved technology in building materials and energy efficiency
- Reduction of code modifications
- Flagstaff's codes will be more consistent with other cities and counties throughout the state of Arizona.



Who

You! These Open Houses are open to, and for, the general public, and are your best chance to participate, learn more, and comment on the proposed updates!



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Boards & Commission Meetings

- **November 8, 2018:** [Building and Fire Code Board of Appeals #1](#)
- **December 4, 2018:** [Building and Fire Code Board of Appeals #2](#)
- **January 22, 2019:** [Commission on Inclusion and Adaptive Living](#)
- **February 13, 2019:** [Planning & Zoning Commission](#)
- **February 28, 2019:** [Sustainability Commission](#)
- **April 2, 2019:** [Building and Fire Code Board of Appeals #3](#)



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Boards & Commission Meetings

All boards and commissions recommended the items to move forward with the exception of:

- Building and Fire Code Board of Appeals
 - Blower door testing
 - EV vehicle charging



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International Building Code (IBC)

AMENDMENT

Section 429 Electric Vehicle (EV) Charging

- Requires EV-ready parking spaces for all **new commercial, multi-family, and industrial structures** providing 20 or more parking spaces

Parking Spaces Provided	EV-ready Parking Spaces Required
1-19	0
20-50	1
51-100	2
100+	3



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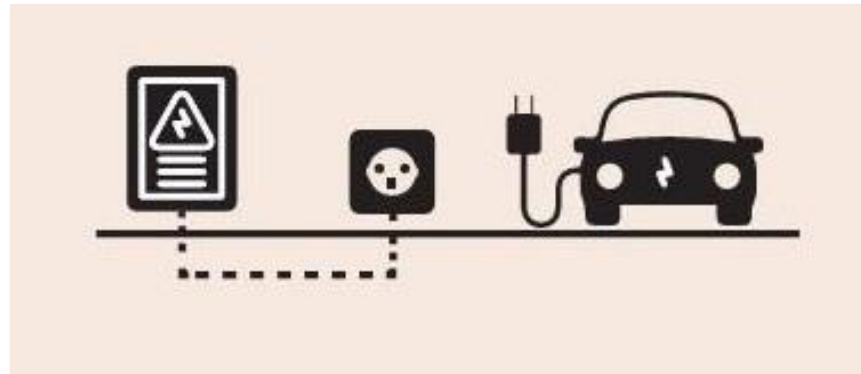


IBC

SECTION 429 Electric Vehicle (EV) Charging

What is “EV-ready”?

- Panel capacity – 208/240V, 50 capacity with overcurrent device (circuit breaker)
- Conduit with conductor/wiring
- Receptacle (similar to domestic electric clothes dryer)



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IBC

1110.4.13 Play areas.

- Play areas containing play components designed and constructed for children shall be located on an *accessible route*.



Children's playground

[iStock.com/natureexplorer2](https://www.iStock.com/natureexplorer2)



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IBC

1507.18 Building-integrated photovoltaic roof panels. (Also, IRC R905.17)

- Building-integrated photovoltaic panel systems have specific requirements as a roof-covering material.
 - Deck requirements
 - Deck slope
 - Underlayment
 - High wind attachment
 - Ice barrier
 - Material standards



BIPV panels

iStock.com/Kwangmoozaa



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IBC

2902.3 Public Toilet Facilities

- 2015 IBC Change
- Limited-size quick service tenant spaces are no longer required to provide toilet facilities for public customers.

Exception: Public toilet facilities shall not be required for:

1. Parking garages where operated without parking attendants.

2. Structures and tenant spaces intended for quick transactions, including takeout, pickup and drop-off, having a public access area less than or equal to 300 square feet.



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International Existing Building Code (IEBC)

405.2.1.1 Snow Damage

- Structural components whose damage was caused by or related to snow load effects shall be repaired, replaced or altered to satisfy the requirements of Section 1608 of the *International Building Code*.
- Structural components damaged by snow events must be repaired assuming snow loads for new buildings using the IBC.



Damage to roof due to large snow loads

[niKolpetr/Shutterstock.com](https://www.shutterstock.com/user/niKolpetr)



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IEBC

505.4, 701.4

Emergency Escape Opening Operation

- **CHANGE SUMMARY:** Emergency escape and rescue openings are required to be operational. Related provisions for being operational have been added to the Prescriptive Compliance Method and Alterations Level 1.



Emergency escape and rescue opening operation in existing b

© International Code Council



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International Residential Code (IRC)

Significant Changes Regarding Seismic Provisions

- The National Association of Home Builders (NAHB) report on the 2018 Significant Changes and Cost Impacts:
- Change in Wall Bracing and Foundation Costs for Reference House 4:
 - Seismic Design Category D2 to a Seismic Design Category C
 - 2-story 2,607SF with attached 2-car garage.
 - \$11,950 – in approx. savings!



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IRC

- **Wall bracing based on wind loads vs. seismic loads**
- City of Flagstaff falls within Seismic Design Category C, which means that the wind provisions prevail and not the seismic provisions.



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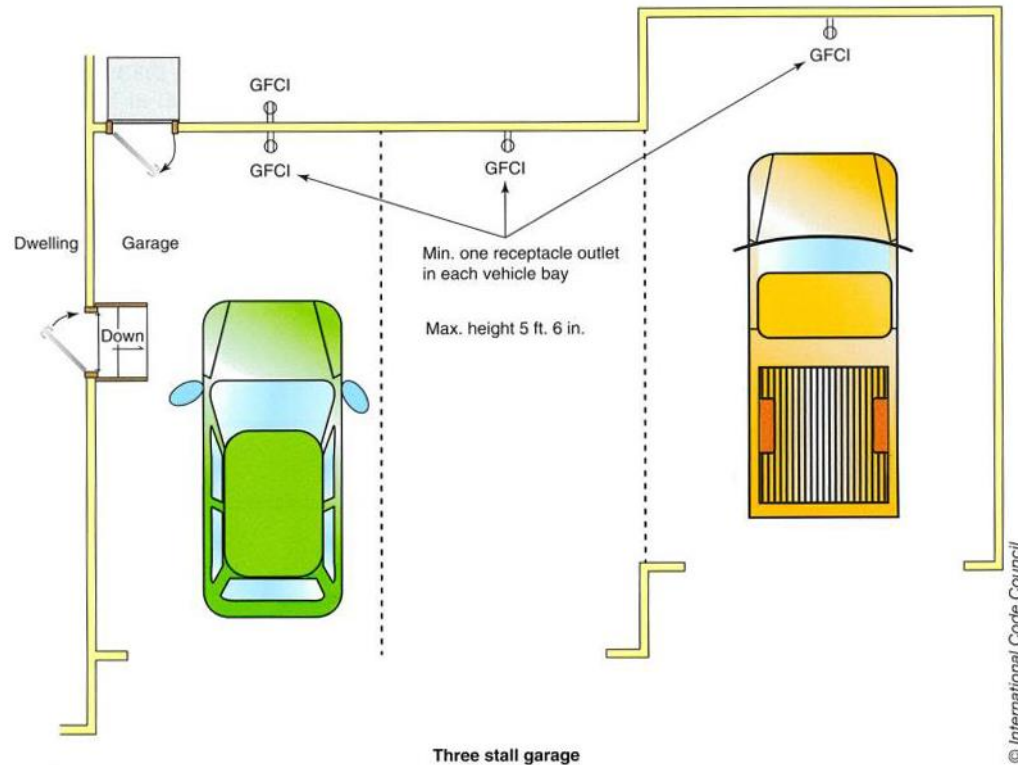




IRC

E3901.9 Garage receptacle outlet location

A receptacle outlet must be located in each vehicle bay in a garage.



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IRC

AMENDMENT: E3901.9 EV Charging

- At least one required garage receptacle shall be a 208/240-volt individual branch circuit for purposes of electric vehicle (EV) charging. The service panel or subpanel circuit directory shall provide a 50-ampere minimum dedicated branch circuit and a branch circuit overcurrent device. Electric vehicle supply equipment shall be installed in accordance with 2017 NFPA 70/NEC.
- Exception: Additions and alterations to existing one- or two-family dwellings and townhouses constructed per the IRC are exempt from the EV charging requirement.



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IRC

Appendices (Not enforceable unless specifically adopted.)

- Appendix Q Tiny Houses
- Appendix R Light Straw-Clay Construction
- Appendix S Strawbale Construction
- Appendix T Solar-ready Provisions

Element	General requirement
Egress roof access window	A skylight or roof window for emergency escape from a loft
Loft	Open on one side with a ceiling height of less than 6 feet 8 inches
Tiny house	Maximum area 400 square feet excluding lofts
Ceiling heights	Generally 6 feet 8 inches or less
Minimum loft area	35 square feet with 5-foot minimum dimension
Stairway	Width: 17 to 25 inches Headroom: 6 feet 2 inches Risers: 7 to 12 inches Treads: Calculated based on riser height
Ladders	Width: 12 inches Rung spacing: 10 to 14 inches Incline 70 to 80 degrees
Loft guard height	One-half of the clear height to ceiling Not required to be over 36 inches



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International Mechanical Code (IMC)

Chapter 14 Solar Thermal Systems

- Substantially rewritten for consistency with current technology
- Applies only to solar thermal systems as opposed to solar photovoltaic systems
- References two solar product standards
 - ICC 900/SRCC 300 Solar Thermal System Standard
 - ICC 901/SRCC 100 Solar Thermal Collector Standard



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International Plumbing Code (IPC)

Section 403.2 Separate facilities

- “Where plumbing fixtures are required, separate facilities shall be provided for each sex.”
- Exception #4 added:
 - Separate facilities shall not be required in business occupancies in which the maximum occupancy load is 25 or fewer.



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IPC

Section 202 Definitions

Section 410 Drinking Fountains

- Definitions and language included for water dispensers and water coolers



International Code Council®



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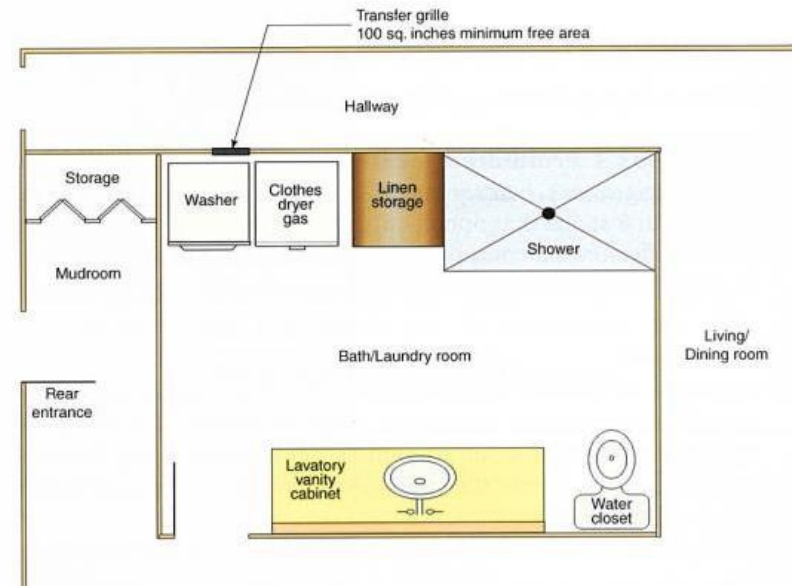




International Fuel Gas Code (IFGC)

Section 303 Appliance Location 303.3 Prohibited Locations

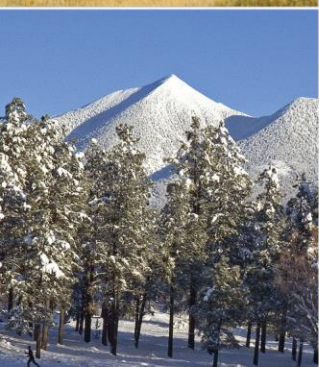
New Exception #6:
Clothes dryers are permitted in residential bathrooms where a permanent opening at least 100 sq. inches, communicating with a space outside of a sleeping room, bathroom, toilet room, or storage closet is provided



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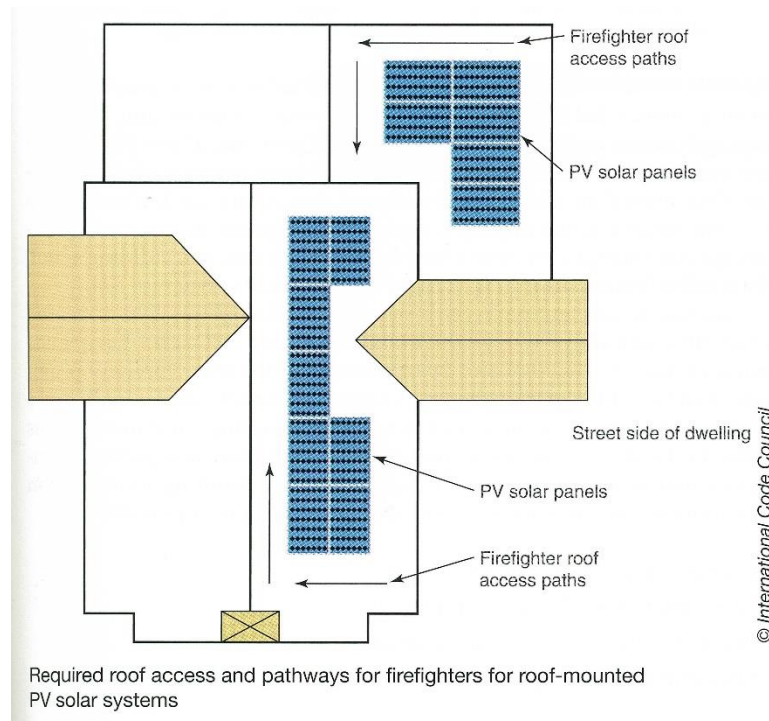




International Solar Energy Provisions (ISEP)

RS402.4 Roof Access and Pathways

- First appeared in 2012 International Fire Code (IFC); subsequently modified in 2015, 2018 IFC
- Emergency access to the roof
- Pathways to specific areas
- Smoke-ventilation opportunity areas
- Emergency egress from the roof



© International Code Council



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International Swimming Pool & Spa Code (ISPSC)

- Swimming pool, spa, and hot tub provisions removed from the IBC and IRC. These codes now reference ISPSC.
- City of Flagstaff amendments primarily to align with Arizona State Statutes.



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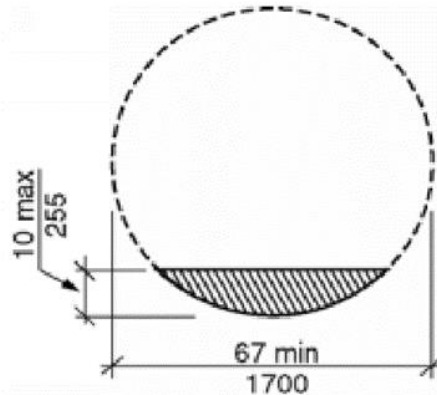


ICC A117.1-2017

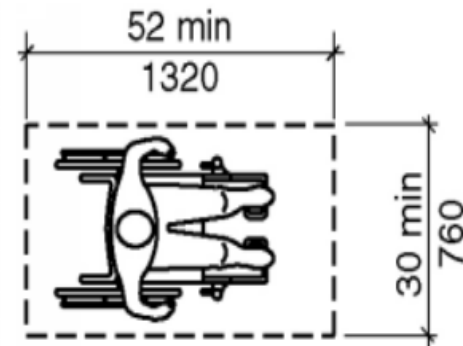
Standard for Accessible and Usable Buildings and Facilities

Chapter 3 Building Blocks

- Section 304 Turning Space – Circular Space
- Section 305 Clear Floor Space



Overlap of knee and toe clearance



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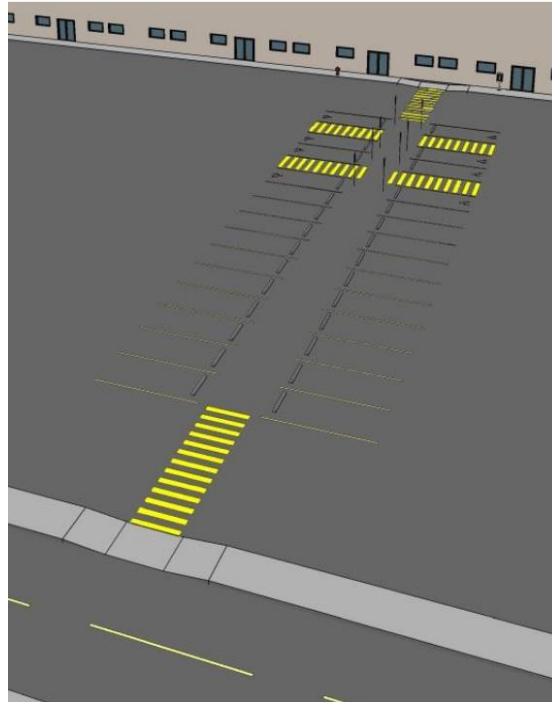


ICC A117.1-2017

Chapter 5 General Site and Building Elements

- Section 507 Accessible Routes through Parking

“Where accessible routes pass through parking facilities they shall be physically separated from vehicular traffic.”



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2017 NFPA 70/National Electrical Code (NEC)

Article 210.12(C) AFCI Protection in Guest Rooms and Suites

AFCI = Arc-Fault Circuit Interrupter

Prior to 2017 NEC no AFCI requirements existed for guest rooms/suites of hotels lacking "permanent provisions for cooking"



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International Energy Efficiency Code (IECC)

Residential Provisions

Compliance Paths (R401.2)

- Prescriptive
 - Comply with all sections in R401 - R404
- Simulated Performance
 - Comply with sections R401 - R404 marked "mandatory"
 - Comply with all sections in R405
 - Standard Reference Design and Proposed Design
- **Energy Rating Index (ERI)**
 - Comply with all sections in R406
 - Demonstrate compliance by providing documentation from an approved third party



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IECC – Residential Provisions

R406 Energy Rating Index Compliance Alternative

- First appeared in 2015 IECC
 - Table R406.4 Maximum Energy Rating Index (ERI)
 - Lower score = less energy consumption
 - Climate Zone 5
 - 2009: **82***
 - 2012: **80***
 - 2015: **55**
 - 2018: **61**
- * Home constructed to minimum prescriptive requirements of respective IECC edition



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IECC – Residential Provisions

R406 ERI Compliance Alternative

IECC 2018 Energy Rating Index Report

Property [REDACTED] Organization [REDACTED] ERI
Flagstaff, AZ 86001 [REDACTED] Preconstruction

Annual Energy Consumption		
	Rated Home Calculated Energy Use (MBTU)	Rated Home Cost (\$/yr)
Heating	29.7	146
Cooling	0.8	32
Water Heating	13.5	58
Lights & Appliances	16.0	615
Photovoltaics	-0.0	-0
Total	60.0	1125

Projected Rating: Based on Plans - Field Confirmation Required.

Annual Estimates		
Electric(kWh):	5111	C02 Emissions(Tons): 5
Natural gas(Therms):	426	Energy Savings (\$)**: 463
*Based on standard operating conditions		
**Based on the 2018 IECC Energy Rating Index Reference Design Home		

TARGET ERI: 61	2018 ERI: 58	PASS
This home MEETS the 2018 Energy Rating Index requirements of Sections 406.3 and 406.4 of the 2018 IECC for climate zone 5B. This 2015 ERI is calculated per ANSI/RESNET/ICC Standard 301-2014, as published January 2016 with Addenda A & B.		
Name [REDACTED]	Signature [REDACTED]	
Organization [REDACTED]	Date	19 February 2019

Mandatory Requirements			
2018 ERI Target	PASS	Duct Insulation (Ducts outside R-6, inside is R-0)	PASS
2009 IECC UA	PASS	Maximum Fenestration U-factor/SHGC (R402.5)	PASS
Duct Testing (2015)	PASS	Air Leakage (5 ACH50 for CZ1-2, 3 ACH50 for CZ3-8)	PASS
Mechanical Ventilation	PASS	High efficacy lights installed (90%)	PASS
Hot water pipe insulated to R-3	PASS	Mandatory Requirements Checkbox (2018 IECC)	PASS
Mechanical Ventilation Efficacy	PASS		

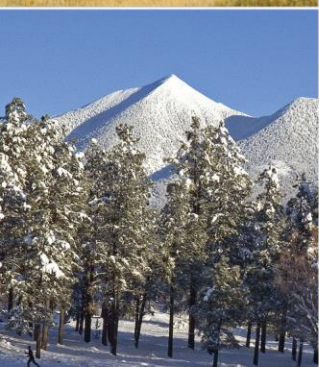
Emissions Data		Provider Data and Seal	
Pollution Prevented		TITLE	
Carbon Dioxide (CO2) - tons/year	3.2	Company	
Sulfur Dioxide (SO2) - lbs/year	1.7	Address	
Nitrogen Oxides (NOx) - lbs/year	7.5	City, State, Zip	
		Phone #	

REM/Rate - Residential Energy Analysis and Rating Software v15.7.1
This information does not constitute any warranty of energy costs or savings.
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IECC – Residential Provisions

Table R402.1.1 (Prescriptive)

TABLE R402.1.2
INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT^a

CLIMATE ZONE	FENESTRATION U-FACTOR ^b	SKYLIGHT ^b U-FACTOR	GLAZED FENESTRATION SHGC ^{b, e}	CEILING R-VALUE	WOOD FRAME WALL R-VALUE	MASS WALL R-VALUE ⁱ	FLOOR R-VALUE	BASEMENT ^c WALL R-VALUE	SLAB ^d R-VALUE & DEPTH	CRAWL SPACE ^c WALL R-VALUE
--------------	------------------------------------	--------------------------------	------------------------------------------	-----------------	-------------------------	--------------------------------	---------------	------------------------------------	-----------------------------------	---------------------------------------

2009

5 and Marine 4	0.35	0.60	NR	38	20 or 13+5*	13/17	30	10/13	10, 2ft	10/13
----------------	------	------	----	----	-------------	-------	----	-------	---------	-------

2009 AMENDED

5 and Marine 4	0.45				19/15**					
----------------	------	--	--	--	---------	--	--	--	--	--

2018

5 and Marine 4	0.30	0.55		49	20 or 13+5*			15/19		15/19
----------------	------	------	--	----	-------------	--	--	-------	--	-------

*First value = cavity insulation + second value = continuous insulation

**R-19 cavity insulation for 2x6, R-15 high density cavity insulation for 2x4; no cavity + continuous option offered



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IECC – Residential Provisions

R402.4 Air Leakage (Mandatory)

R402.4.1.2 Testing

- Blower door testing to confirm number of air changes per hour
 - Air change: A measure of the air volume added to or removed from a space divided by the volume of the space
 - Climate Zone 5 – Maximum 3 air changes/hour
- 2009 IECC: One of two options
- 2012 IECC: Became mandatory testing method



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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.





IECC – Residential Provisions

R403.3 Ducts

R403.3.3 Duct Testing (Mandatory)

- Rough-in test or Postconstruction test to confirm duct tightness/leakage
- Appears in 2009 IECC
- Was not amended out in 2013 adoption: “not enforced”



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IECC – Residential Provisions

R403.5 Service hot water systems

R403.5.1.1 Circulation systems

- Requires circulation pump

R404.1 Lighting Equipment (Mandatory)

- 2009: 50% high efficiency
- 2012 & 2015: 75% high efficiency
- 2018: 90% high efficiency



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CITY OF FLAGSTAFF

STAFF SUMMARY REPORT

To: The Honorable Mayor and Council
From: Jerry Bills, Deputy Fire Chief
Date: 05/03/2019
Meeting Date: 05/14/2019



TITLE

2018 International Fire Code Adoption Update

STAFF RECOMMENDED ACTION:

Staff recommends the Council approves this item to move forward in the approval of the 2018 International Fire Code and Amendments. However, the City Attorney's Office has yet to review the proposed amendments, therefore, changes to these may be made if it is determined by legal to be necessary. Changes, if any, will be included when the first reading of the Ordinance comes before Council for consideration.

EXECUTIVE SUMMARY:

The Fire Department in coordination with the Building Department proposes the adoption of the 2018 Edition of the International Fire Code and the local amendments. This new Code will replace the current 2012 edition of the International Fire Code and the local amendments adopted in 2016. It is the intention of the two City departments to be in the same family of codes and to continue to adopt the Code together in the future. This provides the community with a consistent set of codes will assist the builder with interpretation and consistency between agencies

INFORMATION:

Throughout the past year Fire Department has been working hard on public outreach training sessions, open houses, presenting to other Boards and Commissions, advertising on the local radio show and in the newspaper as well as social media. The Fire Department met with the Building and Fire Code Board of Appeals and presented the proposed code amendments. We returned two additional times to ensure there were no questions. We also met with Sustainability staff to ensure the proposed codes and amendments align with the Climate Action and Adaption Plan. The City of Flagstaff and Coconino County partnered together to provide 10 public outreach training sessions over the course of 9 months addressing all substantial code changes as well as training on the proposed codes. At the conclusion of the 10 training sessions, we recorded an overall attendance of 257 people. Their professions ranged from internal staff, contractors, design professionals, homeowners, developers and staff from other jurisdictions. The Fire Department accompanied the Building Safety who hosted 2 open houses to allow for as much input as possible.

Attachments: [2018 Significant Changes](#)
 [2018 IFC Amendments](#)
 [2018 IFC Presentation](#)

2012 to 2018 IFC Significant Changes- There have been many updates to the 2018 IFC in the past 6 years but approximately 180 significant changes from the 2012 IFC based on frequency of application as well as special significance of the change from previous code additions

– Below is a short list of changes specific to the CRR division of the Flagstaff Fire Dept.

Emergency Preparedness Updates - Educational Facility Lockdowns/ Locking arrangements

Section 403 -This section of the code has been extensively revised and content updated for consistency - Many portions of this chapter have been relocated in an attempt to consolidate information on this subject. The increase in school and workplace violence has placed a need to look at emergency egress as well as security protection in public buildings. The majority of this update will fall into the SFMO as they inspect all public and private schools. The FFD will continue to preplan these facilities.

PV - Solar Systems Updates - Residential/ Commercial

Section 605 .11 The requirements for solar systems have been clarified and coordinated with the IBC and NFPA 70 -Subjects include access and pathways, roof access points, size of solar arrays and allowance for smoke ventilation operations

Elevator Operations Updates - Sprinkler Systems and Water in Hoist Way

Section 607.6 This is a new requirement to ensure that devices are designed to prevent water from infiltrating into fire service access elevators hoist ways and occupant evacuation elevator hoist ways from fire sprinkler systems

Inspection and Cleaning of Commercial Cooking Hoods - A-2 s

609.3.3-This section references a new standard that addresses the cleaning of commercial cooking exhaust hoods and ducts, it includes grease accumulation, recordkeeping and tagging equipment following the ANSI -standards for cleaning of commercial kitchen exhaust systems

Existing A-2s - Bar/ Restaurant - Occupant Load FP Systems Existing

1103.5.1 -This section has been added to the 2018 IFC and requires a retro fit installation of a sprinkler system to existing A-2 s (Bar and Restaurants) with an established occupant load over 300 that serve alcohol. This code change is a reaction to the historical review of large fire fatalities in these types of occupancies including the recent Oakland Ghost Ship Fire.

Domestic Cooking in Institutional Facilities I-2s

904.13 – UL 300A has been added to the IFC and the new definition of institutional occupancy group 2 condition, (nursing homes, assisted living, etc.) from the IBC for an extinguishing system within the domestic cooking hood of a such occupancy has been incorporated

Electrical Circuit Requirements for Fire Pumps

913.2.2 This new provision references UL standard 2196 which provides for the survivability of fire pump power supply wiring -fire resistive

Carbon Monoxide Detection – New Code numbering - Existing Requirements in Structures

915- The requirements for carbon monoxide detection have been completely rewritten to clarify the provisions, and relocated to a new section of the code. Expansion to address certain classrooms in educational facilities. The code also now redirects relocation of detection to only sleeping and dwelling units

Carbon Dioxide Detections Systems - Carbonated Beverage Distribution Systems /Detection

5307 – Large carbon dioxide systems for beverage dispensing create a life safety hazard. Regulation of these systems are now included in the model code. We had previously adopted this as a local amendment in our 2012 IFC adoption.

Combustible Storage Clearance Indoor, as well as pallet storage outside - Sprinklered and Non Sprinklered Buildings

Section 315 – Combustible storage heights in commercial not sprinkled buildings

Section 315 addresses storage of combustibles- shall be maintained at 2 feet or more below the ceiling, and 18 inches below sprinkler systems in these buildings. Outside pallet storage shall now be limited to within 10 feet of property lines with adequate separation distance between piles

Fire Pumps Sprinkler Riser Room / Requirements / Access Temperature

901.4.6 Pump and riser room exterior access proper marking and a heated environment to a minimum of 40° F are required by the model code. These are already in place through our local amendments

Panic Hardware - Tied to Alarm Systems in Buildings

1010.1 Doors provided with panic hardware in group A and E occupancies can be electronically locked as long as they are tied to an alarm system

Combustible Dust - Updates -Further define a combustible dust environment.

Chapter 22 of the IFC now requires combustible dust producing operations in businesses to have a dust hazard analysis (DHA) in accordance with NFPA 652 if it had not been previously evaluated.

Tents Membrane Structures - Stability -Clarify Our Chapter 12

Section 3105 of the IFC now codifies the use of IBC approved construction documents for tents and membrane structures above 400 sq. ft. before a permit is to be issued. This is already a part of our cities special events permit process.

Outdoor Assembly Events Safety - Updates

Section 3106 of the IFC now codifies the many safety measures at large special events including safety plans, weather monitoring, crowd managers, exit plans, and outdoor cooking requirements. Most are already a part of our cities special events permit process, and requirements previously adopted as chapter 12 of our local amendments to the 2012 IFC.

Processing / Extrication Facilities Grow Facilities

Chapter 39 of the 2018 IFC is a newly added chapter to specifically regulate the process of extricating oils from plant material. It assists code officials in defining hazards of processing, and safety systems that should be in place.

*International Fire Code, 2018 Edition and Amendments, Additions and Deletions Thereto
and 2018 Amendments to the Flagstaff City Code, Title 5, Fire Code*

5-02-001-0005 AMENDMENTS

The following provisions shall have the effect of either amending, adding to, or deleting from the International Fire Code, 2018 Edition:

CHAPTER 1, IFC, Administration

Amend Section 101.1 Title, to read:

These regulations shall be known as the Fire Code of City of Flagstaff, hereinafter referred to as "this code."

Amend Section 102.7 entitled "Reference codes and standards", by adding:

Referenced codes and standards as listed in Chapter 80, and in this document are adopted in their entirety.

Amend Section 104.6, Official Records, to read:

The fire code official shall keep official records as required by Sections 104.6.1 through 104.6.4. Such official records shall be retained as prescribed by state and city archival regulations.

Amend Section 105.6.3 Open Burning, by deleting

Exception: Recreational fires.

Amend Section 109.1 entitled "Board of appeals established", to read:

The Building and Fire Code Board of Appeals created in Chapter 2-02 of the Flagstaff City Code shall hear and decide appeals of orders, decisions or determinations made by the fire official relative to the application and interpretation of this code.

Amend Section 110.4 entitled "Violation penalties", to read:

Persons who violate a provision of this code or fail to comply with any of the requirements thereof or who shall erect, install, alter, repair or do work in violation of the approved construction documents or directive of the fire code official, or of a permit or certificate used under a provision or provisions of this code, shall be guilty of a class one misdemeanor and upon conviction shall be punishable by a fine and/or imprisonment set forth by the governing laws of the jurisdiction. Each separate day or any portion thereof, during which any violation of this Code occurs or continues, shall be deemed to constitute a separate offense.

CHAPTER 2, IFC, Definitions

Amend Section 202 entitled "Definitions; Detached Building" to read:

DETACHED BUILDING: A separate standalone structure that is separated from other buildings in accordance with the requirements of the International Building Code, greater than 200 square foot and/or within 15 feet of the existing or primary structure. This classification shall include, but not limited to the following:

Casitas
Gazebos
Storage
Sheds
Garages
Green
Houses
Ramadas
Barns
Shops

Amend Section 202 entitled Definitions, by adding:

SPECULATIVE WAREHOUSE. A building designed for high piled combustible storage without a known type or commodity designation specified.

SKY LANTERN. A device designed to carry an open flame as an airborne light. Also known as, but not limited to, Kongming Lantern, Whish Lantern, Sky Candle, Fire Balloon.

CHAPTER 3, IFC, General Requirements

Amend Section 319 Mobile Food Preparation Vehicles, by adding

319.4.3 Location Mobile food preparation vehicles shall not be located within 20 feet of tents, canopies, or membrane structures.

CHAPTER 5, IFC, Fire Service Features

Amend Section 503.1.2 Additional Access, by adding:

Approved secondary access shall be provided to all subdivisions and developments when fire access exceeds 1200 feet in length. Secondary access shall be provided for all one or two family residential developments that exceed 30 units/lots.

Amend Section 503.2.3 Surface, to read:

Fire apparatus access roads shall be designed and maintained to support a minimum 80,000 pounds gross vehicle weight shall be surfaced as to provide all weather driving capabilities. A maintenance agreement for private roads or other fire access may be required showing the responsibility for roadway maintenance and snow plowing.

Amend Section 503.2.4 entitled "Fire Service Features; Fire Apparatus Access Roads; Specifications; Turning Radius", to read:

The required minimum turning radius of a fire apparatus access road shall be 35 feet inside, 55 feet outside, or 45 feet on center

Amend Section 503.2.5 Dead ends, by adding:

There shall be no parking or other obstructions in fire apparatus turnaround areas that would impair turning of apparatus. When parking or other design features are desired, the proper design must be approved. Accumulation of snow must also be accounted for to prevent winter time obstructions.

Amend Section 503.2.7 entitled "Fire Service Features; Fire Apparatus Access Roads;

Specifications; Grade, to read:

The gradient for a fire apparatus access road shall not exceed 10 percent on straight sections of roadway and 5 percent side slope on turnarounds and curves

Amend Section 504.2 Maintenance of exterior doors and openings, by adding:

Exterior doors and openings required by this code or the building code shall be maintained readily accessible for emergency access by the fire department. Exterior doors shall be supplied with an approved exterior handle.

Amend Section 505.1 Address Numbers, by adding:

Commercial address numbers shall be a minimum of 6 inches high with a minimum stroke width of 0.5 inch. Buildings in multi-building complexes must be marked with 12" minimum numbers. When address numbers attached to buildings are insufficient to be seen from the street, additional numbers may be required at a location approved by the Chief. Approved identification shall also be provided on the rear door(s) at any location where access into the building may be difficult to determine.

Amend Section 507 Fire Protection Water Supply, by adding:

507.1 Required water supply. An approved water supply capable of supplying the required fire flow for fire protection shall be provided to premises on which facilities, buildings or portions of buildings are hereafter constructed or moved into or within the jurisdiction. When automatic fire sprinkler systems or other approved fire protection systems or features are installed, the specifications of this section may be modified at the discretion of the Chief, when in his opinion, firefighting or rescue operations will not be impaired.

Amend Section 507.2 Type of water supply, by adding:

Water supply for a major system component as described by the American Water Works Association must provide a continuous and uninterrupted supply of fire protection water through redundancy. Fire mains in excess of 1,000 feet in length or which have more than 3 hydrants affixed shall be looped to a second source of water. All fire mains hereafter constructed shall be a minimum of 8-inch diameter but in all cases shall be of sufficient size to adequately supply the required fire flow.

Amend Section 507.3 Fire Flow, to read:

Fire flow tests used to design sprinkler systems, standpipe systems, and fire supply mains shall be performed by a contractor licensed by the State of Arizona, and who has a current business license issued by the City of Flagstaff. The test shall be witnessed by the Flagstaff Fire Department. The method for determining fire flow requirements for buildings and subdivisions shall be Appendix B Fire Flow Requirements for Buildings.

Amend Section 507.5 Fire Hydrant Systems, by adding:

507.5.1 When any portion of the facility or building protected is in excess of 400 300 feet from a water supply on a public street for commercial occupancies and 500 feet from a water supply for residential single family and duplex occupancies, as measure by an approved route around the exterior of the facility or building, on-site fire hydrants and mains capable of supplying the required fire flow shall be provided when required by the Fire Chief

CHAPTER 6, IFC, Building Services and Systems**Amend Section 605.8 Refrigerant detection, to read:**

Machinery rooms shall contain a refrigerant detector with an approved and distinctive audible and visual alarm. The alarm notification devices shall comply with the audible and visual requirements of the *National Fire Alarm Code*, NFPA 72. A supervisory alarm shall be activated when the mechanical ventilation system fails. The detector, or a sampling tube that draws air to the detector, shall be located in an area where refrigerant from a leak will concentrate. The alarm shall be activated at a value not greater than the corresponding TLV-TWA values shown in the International Mechanical Code. Detectors and alarms shall be placed in one or more locations to assure notifications of all occupants.

CHAPTER 9, IFC, Fire Protection Systems**Amend Section 901.2 entitled "Construction documents", by adding:**

Automatic sprinkler systems designed in accordance with NFPA 13, 13D and 13R shall be submitted and reviewed bearing a review certification and signature of a minimum level NICET III Certified Engineering Technician (CET) or Arizona registrant. Fire alarm systems designed in accordance with NFPA 72 shall be reviewed and submitted bearing a review certification and signature of a minimum level III NICET Technician or Arizona registrant.

Amend Section 901.3 entitled Permits, by adding:

901.3.1 Modifications. No person shall remove or modify any fire protection system installed or maintained under the provisions of this code without prior approval by the fire chief or fire code official.

Amend Section 901.6 entitled Inspection, testing and maintenance by adding:

Fire detection and alarm systems, emergency alarm systems, gas detection systems, fire-extinguishing systems, mechanical smoke exhaust systems and smoke and heat vents, fire pumps shall be maintained in an operative condition at all times and shall be replaced or repaired where defective. Nonrequired fire protection systems and equipment shall be inspected, tested and maintained or removed. All fire protection systems shall be inspected and tested annually by a contractor licensed by the State of Arizona and who possesses an Arizona State Revenue License to work on the specific type of fire protection system being inspected or tested. Contractors shall provide current copies to the fire department annually.

Amend Section 901.6.3 entitled "Records", to read:

Records of all system inspections, tests and maintenance required by the referenced standards shall be maintained on the premises for a minimum of three years and deficiencies shall be copied to the authority having jurisdiction within thirty (30) business days.

Amend Section 901.6, by adding:

901.6.3.1 Inspection and testing. All fire protection systems shall be inspected and tested annually by a contractor licensed by the State of Arizona and who has a current ~~business license issued by the City of Flagstaff~~ Arizona State Revenue License to work on the specific type of fire protection system being inspected or tested.

Amend Section 903 entitled Automatic Sprinkler Systems by adding

903.2 Where Required. Approved automatic sprinkler systems in new buildings and structures shall be provided in the locations described in Sections 903.2.1 through 903.2.12. In addition to the requirements of the fire and building codes, an approved automatic monitored sprinkler system shall be installed throughout all levels of all new Group B, E, F, M, U and S occupancies 5,000 square feet (464m²) or greater and in all buildings over 3 stories in height regardless of the total square footage. Such systems shall be in accordance with the International Fire Code, International Building Code and installed in accordance with NFPA 13, 13D or 13R as specified by the fire code official.

Notwithstanding the foregoing, an automatic monitored fire sprinkler system may be installed in any building regardless of floor area.

Amend Section 903.2.1.1 entitled "Fire Protection Systems, Automatic Sprinkler Systems; Where required; Group A-1, to read:

An automatic sprinkler system shall be provided for Group A-1 occupancies where one of the following conditions exists:

1. The fire area exceeds 5,000 square feet (464m²).
2. The fire area has an occupant load of 300 or more.
3. The fire area is located on a floor other than a level of exit discharge serving such occupancies.
4. The fire area contains a multi theater complex.

Amend Section 903.2.1.3 entitled "Fire Protection Systems, Automatic Sprinkler Systems; Where required; Group A-3", to read:

An automatic sprinkler system shall be provided for Group A-3 occupancies where one of the following conditions exists:

1. The fire area exceeds 5,000 square feet (464m²).
2. The fire area has an occupant load of 300 or more.
3. The fire area is located on a floor other than a level of exit discharge serving such occupancies.

Amend Section 903.2.1.4 entitled "Fire Protection Systems, Automatic Sprinkler Systems; Where required; Group A-4", to read:

An automatic sprinkler system shall be provided for Group A-4 occupancies where one of the following conditions exists:

1. The fire area exceeds 5,000 square feet (464m²).
2. The fire area has an occupant load of 300 or more.

3. The fire area is located on a floor other than a level of exit discharge serving such occupancies.

Amend Section 903 entitled "Fire Protection Systems; Automatic Sprinkler Systems; Where required; by adding:

903.2.2.1 Group B

An automatic monitored sprinkler system shall be provided throughout all Group B occupancies where any of the following exist:

1. Where Group B fire area is 5,000 square feet (464m²) and greater, or
2. Fire area is located more than three stories above grade

Amend Section 903.2.2 Ambulatory care facilities, to read:

903.2.2.2 Ambulatory care facilities

An *automatic sprinkler system* shall be installed throughout the entire floor containing an ambulatory care facility where either of the following conditions exist at any time:

1. Four or more care recipients are incapable of self-preservation, whether rendered incapable by staff or staff has accepted responsibility for care recipients already incapable.
2. One or more care recipients that are incapable of self-preservation are located at other than the level of exit discharge serving such a facility.

In buildings where ambulatory care is provided on levels other than the *level of exit discharge*, an *automatic sprinkler system* shall be installed throughout the entire floor where such care is provided as well as all floors below, and all floors between the level of ambulatory care and the nearest *level of exit discharge*, including the *level of exit discharge*.

Amend Section 903.2.3 entitled "Fire Protection Systems, Automatic Sprinkler Systems; Where required; Group E", to read:

An automatic sprinkler system shall be provided for Group E occupancies as follows:

1. Throughout all Group E fire areas greater than 5000 square feet (462m²) in area.
2. The Group E fire area is located on a floor other than a level of exit discharge serving such occupancies.

Exception: An automatic sprinkler system is not required in any area below the lowest level of exit discharge serving that area where every classroom throughout the building has at least one exterior exit door at ground level.

3. The Group E area has an occupant load of 300 or more.

Amend Section 903.2.4 entitled "Fire Protection Systems, Automatic Sprinkler Systems; Where required; Group F-1", to read:

An automatic sprinkler system shall be provided throughout all buildings containing Group F-1 occupancy where one of the following conditions exists:

1. A Group F-1 fire area exceeds 5,000 square feet (464m²).
2. A Group F-1 fire area is located more than three stories above grade plan.
3. The combined area of all Group F-1 fire areas on all floors, including any mezzanines, exceeds 5,000 square feet (464m²).
4. A Group F-1 occupancy used for the manufacture of upholstered furniture or mattresses exceeds 2,500 square feet (232 m²).

Amend Section 903.2.4.1 Woodworking operations, to read:

An automatic sprinkler system shall be provided throughout all F-1 occupancy fire area that conation woodworking operations in excess of ~~2500~~—5000 square feet in area (464 m²) which generate finely divided combustible waste or which use finely divided combustible materials.

Amend Section 903.2.7 entitled "Fire Protection Systems; Automatic Sprinkler Systems; Where required; Group M", to read:

An automatic sprinkler system shall be provided throughout buildings containing Group M occupancy where one of the following conditions exists:

1. A Group M fire area exceeds 5,000 square feet (464m²).
2. A Group M fire area is located more than three stories above grade plane.
3. The combined area of all Group M fire areas on all floors, including any mezzanines, exceeds 5,000 square feet (464m²).
4. A Group M occupancy used for the display and sale of upholstered furniture or mattresses exceeds 5,000 square feet (464 m²).

Amend 903.2.8 entitled Group R, to read:

An automatic sprinkler system installed in accordance with Section 903.3 shall be provided throughout all buildings with a Group R-1 and R-2 fire area.

Amend Section 903.2.9 entitled "Fire Protection Systems, Automatic Sprinkler Systems; Where required; Group S-1", to read:

An automatic sprinkler system shall be provided throughout all buildings containing Group S-1 occupancy where one of the following conditions exists:

1. A Group S-1 fire area exceeds 5,000 square feet (464m²).
2. A Group S-1 fire area is located more than three stories above grade plane.
3. The combined area of all Group S-1 fire areas on all floors, including any mezzanines, exceeds 5,000 square feet (464m²).

4. A Group S-1 fire area used for the storage of commercial trucks or buses where the fire area exceeds 5,000 square feet (464 m²).

Amend Section 903.2.9.1 entitled "Fire Protection Systems, Automatic Sprinkler Systems; Where required; Repair Garages", to read:

An automatic sprinkler system shall be provided throughout all buildings used as repair garages in accordance with Section 406.8 of the International Building Code, as shown:

1. Buildings having two or more stories above grade plane, including basements, with a fire area containing a repair garage exceeding 5,000 square feet (464m²).
2. Buildings no more than one story above grade plane, with a fire area containing a repair garage exceeding 5,000 square feet (464m²).
3. Buildings with repair garages servicing vehicles parked in basements.
4. A Group S-1 fire area used for the repair of commercial trucks or buses where the fire area exceeds 5,000 square feet (464 m²).

Amend Section 903.2.10 entitled "Fire Protection Systems, Automatic Sprinkler Systems; Where required; Group S-2 enclosed parking garages", to read:

An automatic sprinkler system shall be provided throughout buildings classified as enclosed parking garages in accordance with Section 406.6 of the International Building Code as follows:

1. Where the fire area of the enclosed parking garage exceeds 5,000 square feet (464m²)
2. Where the enclosed parking garage is located beneath other groups.

Exception: Enclosed parking garages located beneath Group R-3 occupancies.

Amend Section 903.3.1.1.1 entitled "Fire Protection Systems; Automatic Sprinkler Systems; Installation requirements; Exempt locations", to read:

Automatic sprinklers shall not be required in the following rooms or areas where such rooms or areas are protected with an approved automatic fire detection system in accordance with Section 907.2 that will respond to visible or invisible particles of combustion. Sprinklers shall not be omitted from any room merely because it is damp, of fire-resistance rated construction or contains electrical equipment.

1. Any room where the application of water, or flame and water, constitutes a serious life or fire hazard.
2. Any room or space where sprinklers are considered undesirable because of the nature of the contents, when approved by the fire code official.
3. Generator and transformer rooms separated from the remainder of the building by walls and floor/ceiling or roof/ceiling assemblies having a fire resistance rating of not less than 2 (two) hours.
4. Fire service access elevator machine rooms and machinery spaces.
5. Machine rooms and machinery spaces associated with occupant evacuation elevators designed in accordance with Section 3008 of the International Building Code.

Amend Section 903.3.5 entitled "Fire Protection Systems; Automatic Sprinkler Systems; Installation requirements; Water supplies", by adding:

The introduction of any toxic substance shall be prohibited. If a sprinkler system is connected to a potable water supply, the use of solutions other than that of pure glycerin (C.P. or U.S.P. 96.5 percent grade) or propylene glycol shall not be permitted."

Amend Section 903.3 installation requirements, by adding:**903.3.9 Speculative warehouse special requirements**

Speculative warehouses shall comply with Chapter 32, and this Chapter. Where the maximum allowable storage height can exceed 12 feet (3658mm) but less than 22 feet (6706mm) the following shall apply:

1. Design for a Class IV non-encapsulated commodity, double row rack storage, 8 foot (2,438mm) aisles and 286 degrees sprinklers; and
2. Hydraulically design to protect the maximum possible clear height of storage without in-rack sprinklers; and
3. Add 500 GPM at the base of the riser for inside hose to hydraulic calculations, and provide the hose stub-outs for future installation or use existing columns for hose installing locations.

Where the maximum allowable storage height can exceed 22 feet (6706mm) the following shall apply:

1. Hydraulically design system to protect the maximum possible clear height of storage without in-rack sprinklers; and
2. Provide .64 GPM per square foot over the hydraulically most remote 2,000 square feet (609600mm); or use an approved alternative design such as ESFR sprinklers.

Amend Section 905 Standpipe Systems, by adding:

Section 905.13 Other Standpipe Systems Required Locations. Notwithstanding the previously specified required locations, approved standpipe systems shall also be required in: Commercial buildings greater than two stories in height.

Amend Section 912.2 Location, to read:

With respect to hydrants, driveways, buildings and landscaping, fire department connections shall be so located such that fire apparatus and hose connected to supply the system will not obstruct access to the buildings for other fire apparatus. Fire department connections (FDC) shall be remote from the building if possible.

Amend Section 912.2.1 Visible Location, to read:

Fire department connections shall be located at the primary entrance to the site, fully visible and recognizable.

Amend Section 1103.5 Sprinkler systems, deleting section 1103.5.1;

1103.5.1 Group A-2 ~~Where alcoholic beverages are consumed in a Group A-2 occupancy having an occupant load of 300 or more, the fire area containing the Group A-2 occupancy shall be equipped with a n automatic sprinkler system in accordance with section 903.3.1.1.~~

Amend Section 3106 Outdoor Assembly Events, addition table 3106.3**Outdoor Assembly Events Table 3106.3**

Occupant Load	Minimum number of Exits
1-500	2
501-1000	3
1001-1500	4
Each additional 500 Persons	36" of additional exit width for each exit

3106.3.3 Exit Width The aggregate clear width of exits shall be a minimum of 36 "width wide for each 500 persons to be accommodated

3106.3.4 Exit Signs Exits shall be identified with signs that read -EXIT – The signs shall be weather resistant with letters on a contrasting background. Lettering shall be of sufficient height and brush stroke to be visible within 100 feet. Placement of the exit signs shall be approved by the fire code official.

3106.4 - Outdoor Concerts / Crowd Management, section added

3106.4.1 Front Stage Isle/Separation Minimum 10 foot aisle space for front of stage, adequate crowd manager's during the concert or event to maintain minimum widths. Main isle shall be a minimum of 10 feet in width.

CHAPTER 50, IFC, Hazardous Materials – General Provisions**Amend Section 5003.2.2.1 Design and construction to read:**

(2) Piping and tubing shall be identified indicate the material conveyed and the direction of flow. Pipe labels shall be provided at a maximum spacing of 20 feet at each change of direction and on both sides of walls or floor/ceiling penetrations.

Amend section 5003.2.2.1 Design and construction and add:

(6) Pressure tests of piping constructed of non-metallic material used to convey hazardous materials shall be limited to hydrostatic tests. Pneumatic pressure testing of non-metallic piping shall not be permitted.

Amend Section 5004.9 Emergency alarm to read:

An approved manual emergency alarm system shall be provided in buildings, rooms or areas used for storage of hazardous materials. The emergency alarm system shall be designed using the manual fire alarm requirements of the *National Fire Alarm Code*, NFPA 72. Emergency alarm initiating devices shall be installed outside of each interior exit or exit access door of the storage buildings, rooms or areas. Activation of an emergency alarm-initiating device shall sound an audible signal distinctly different than that of the fire alarm signal. Emergency alarm notification devices shall be yellow or amber in color.

CHAPTER 53, IFC, Compressed Gases**Amend Section 5301.1 Scope, to read:**

Storage, use and handling of compressed gases in compressed gas containers, cylinders, tanks and systems shall comply with this chapter, and National Fire Protection Association standard, NFPA 55, Compressed Gases and Cryogenic Fluids, 2016 edition. Where there is a conflict between the International Fire Code, 2018 edition and NFPA 55, 2016 edition, the more restrictive provision shall apply. Partially full *compressed* gas containers, cylinders or tanks containing residual gases shall be considered as full for the purpose of the controls required.

Amend Section 5302.1 Definitions to add:

Point of Use means detection shall be provided at each location where material or chemical is placed into action.

Amend Section 5303.16.10.1 Insulated Liquid Carbon Dioxide Systems to add:

(A) Gas detection shall be provided at each point of use whether the cylinder vessel, and/or container are located inside or outside the structure. Basements and/or subterranean spaces that could be physically entered, and which contain CO₂ process lines, shall have gas detection.

(B) When a CO₂ gas detection device reaches 15,000 ppm a local warning/supervisory alarm shall sound at a normally occupied location, and/or transmit a supervisory signal to a supervising station if system is monitored off-site.

(C) When a CO₂ gas detection device reaches 30,000 ppm a general evacuation signal shall sound for the occupancy and transmit a gas specific alarm to a supervisory station if system is monitored off-site.

(D) Where there are DOT approved non-insulated cylinders stored and/or used inside or outside the structure, per system, gas detection and alarm systems shall not be required.

CHAPTER 55, IFC, Cryogenic Fluids

Amend Section 5501.1 Scope to read:

Storage, use and handling of *cryogenic fluids* shall comply with this chapter and National Fire Protection standard NFPA 55, Compressed Gases and Cryogenic Fluids Code, 2016 edition. Where there is a conflict between the International Fire Code, 2018 edition and NFPA 55, 2016 edition, the more restrictive provision shall apply. *Cryogenic fluids* shall also comply with Chapter 50 for general requirements. Partially full containers containing residual *cryogenic fluids* shall be considered as full for the purposes of the controls required.

CHAPTER 56, IFC, Explosives and Fireworks**Amend Section 5601.2.4 Financial responsibility, to read:**

Before a permit is issued, as required by Section 5601.2, the applicant shall file with the jurisdiction a corporate surety bond in the principal sum of \$1,000,000 or a public liability insurance policy for the same amount, for the purpose of the payment of all damages to persons or property which arise from, or are caused by, the conduct of any act authorized by the permit upon which any judicial judgment results. The *fire code official* is authorized to specify a greater or lesser amount when, in his or her opinion, conditions at the location of use indicate a greater or lesser amount is required. Government entities shall be exempt from this bond requirement.

Amend Section 5608 by deleting it in its entirety.**Amend Section 5609 by deleting it in its entirety.****APPENDIX D Fire Apparatus Access Roads****Amend Section D102 Required Access to read:**

D102.1 Access and loading. Facilities, buildings or portions of buildings hereafter constructed shall be accessible to fire department apparatus by way of an approved fire apparatus access road with an asphalt, concrete or other approved driving surface capable of supporting the imposed load of fire apparatus weighing at least 80,000 pounds.

Amend Section D107 One- or Two-family dwelling residential developments to read:

D107.1 One- or two- family dwelling residential developments. Developments of one- or two-family dwellings where the number of dwelling units exceeds 30 shall be provided with two separate and approved fire apparatus access roads.

Exceptions:

1. Where there are ~~more than~~ 30 to 50 dwelling units on a single public or private fire apparatus access road and all dwelling units are equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1, 903.3.1.2, or 903.3.1.3, access from two directions shall not be required.

Fire Code 2012 to 2018 Changes





2012 IFC to 2018 changes/new

- Update of NFPA standards to the latest versions.
- Addition of Chapter 12
- First time 2018 Family of Codes
- Emergency Preparedness in schools
- New Standard on Commercial Hood cleaning/documentation
- Dust Hazard analysis- Chapter 22
- Grow Facilities- Chapter 39.



2012 IFC to 2018 changes

- Bar and restaurant Fire Protection System-occupancy loads.
- Fire Sprinkler required for occupancies that serve alcohol and have occupancy loads of 300+.
- 2 buildings in the City and both fall in the Exception for Historical Buildings.



2012 IFC to 2018 Not Changed

- All current Amendments except those related to solar panel installations
- Includes Fire Access requirement (match Engineering Standards)
- Moved- Solar/alternative power -new Chapter 12
- Moved-Tents-3105- Tents over 400 square feet.
- Event Safety Update- require exit plan, weather monitoring, outdoor cooking requirement all are in current Amendments, but now have their own chapter.



2012 IFC to 2018 IFC



Questions?

CITY OF FLAGSTAFF

STAFF SUMMARY REPORT

To: The Honorable Mayor and Council
From: Christine Cameron, Project Manager III
Date: 04/05/2019
Meeting Date: 05/14/2019



TITLE:

Evaluation of ADA accessible parking options for the new City Court Facility location

DESIRED OUTCOME:

The desired outcome of the May 14th presentation is to inform Flagstaff City Council of the options that have been investigated for adding ADA accessible parking in proximity to the new City Court Facility. Staff will request the Council's approval and/or other direction on the recommended option.

EXECUTIVE SUMMARY:

At the March 5 Flagstaff City Council meeting, staff received comments from Mayor Evans and Council that the lack of ADA accessible parking planned in proximity to the new City Court facility was concerning. Staff will present the options that the project team investigated to provide additional ADA accessibility.

INFORMATION:

Several ideas to provide additional ADA parking were discussed at the March 5 Council Meeting, including investigation of the City-owned parking lot across Beaver Street at the Doris Harper-White Playhouse; modifying on-street curb parking adjacent to the building, and decreasing secure Court staff parking to provide ADA spaces. The project team investigated the preliminary feasibility of these options and others. These options are outlined in the attached City Council Report that was submitted to the Council and the Leadership Team the week of April 1.

Attachments: Court ADA Parking CCR
ADA Parking Presentation

CITY COUNCIL REPORT

DATE: April 4, 2019

TO: Mayor and Councilmembers

FROM: Christine Cameron, Capital Improvements Project Manager
Daniel Folke, Acting Community Development Director
Rick Barrett, City Engineer
Bret Petersen, Capital Improvements Engineer

CC: Barbara Goodrich, Shane Dille, Kevin Treadway, Leadership Team

SUBJECT: City Courts ADA Parking

This report is in response to a Council request to have ADA accessible parking available to the new City Court patrons in proximity to the building. Although the current parking plan adheres to the required City zoning code requirements, staff recognizes that not having ADA spaces close to the building would be a hardship on citizens with a disability. Staff is evaluating the feasibility of several options to fulfill this request. The project team would appreciate your review and consideration of the options and our recommendation. The options below are ordered from the most recommended to the least:

1. **Modifying the Doris Harper-White Playhouse (Playhouse) parking that is located across Beaver Street (Exhibit A)** – On March 5, 2019, Council mentioned investigating the City-owned Playhouse lot across Beaver Street for additional parking. Within this lot there are currently two ParkFlag designations for parking: “F” which is used by the Theatrikos Company permit holders and City overflow staff exclusively, and Park by Plate, which is open public parking offered at an hourly rate. The public parking is located adjacent to Cherry Avenue and includes eight regular parking spaces, one ADA accessible space, and one ADA van accessible space. In the interest of improving this area of the lot to help increase ADA service, this option entails taking two regular spots at the east end of the parking area and turning those into one ADA accessible space and modifying the perimeter of a landscape planter on the west end of the parking area to add one regular parking space. The net change in all the spaces would be turning one regular public space into one ADA public space. There is no proposed change to the established permitted parking for Theatrikos Company staff. The Playhouse ADA parking spaces are approximately 160 Liner Feet (LF) from the new Court public entrance.

This option is staff's recommendation to provide additional ADA accessibility in proximity to the building. Adding another ADA parking space would improve service for the Court facility, the Playhouse, and for Nativity Chapel visitors.

2. **Modifying on street parking adjacent to the building to include one ADA accessible space (Exhibit B)** – The team's civil consultant is investigating ADA accessibility using on-street parallel parking options. To achieve this, the curb would have to be moved back toward the building to allow a vehicle to pull further out of the street travel lane. This is required per ADA standards to provide a safe walking area, so the public are not exiting their vehicle in the flow of traffic. Having the space deeper would allow the citizen to position the vehicle for driver's side access or passenger side access. The citizen would then have a clear path of travel to a ramp which leads up onto the sidewalk to the front door of the facility. The curb side ADA parking space would be approximately 40 LF from the new Court public entrance.

Although this is a viable option, it would include added expense for surveying and redesign, permitting for work within the right-of way, asphalt and curb/gutter removal and replacement, and an additional pedestrian ramp. The roadway crown and slope would need to be investigated to determine if they could be modified to satisfy ADA requirements and if surface drainage would work. This option would also necessitate using an area which was originally designated as pedestrian space/parkway and losing one street tree.

The project team also investigated the following options, but they are not recommended for the reasons stated:

3. **Using adjacent properties owned by others and establishing a long-term lease to construct ADA accessible spaces** - The parcels to the west and south of the new Courts facility are owned by Valley National Bank (Chase Bank). Developing ADA accessible parking on this property is not preferred because there is no security in City ownership and the Courts would have to either purchase the property or carry a long-term lease. The cost for this option is not currently considered within the Courts project budget.
4. **Modifying secure on-site parking to include public ADA spaces** - Currently, there are plans for 19 staff spaces (which includes one ADA space) inside a secure perimeter wall and fence that has an entrance gate to Cherry Avenue. This approach follows the recommendations and best practices from the Arizona Supreme Court for staff safety and is recommended by the project consultant, who specializes in judicial facilities. Serious effort was made in the design of the building in the interest of staff security, including secured access entry for staff offices, and separate corridors, stairwells and elevators for staff and public. In their regular course of work, court and prosecutor's staff have been subjected to hostile citizens and armed citizens trying to intimidate staff. They are often in a position of conflict and the police have had to respond to provide additional security.

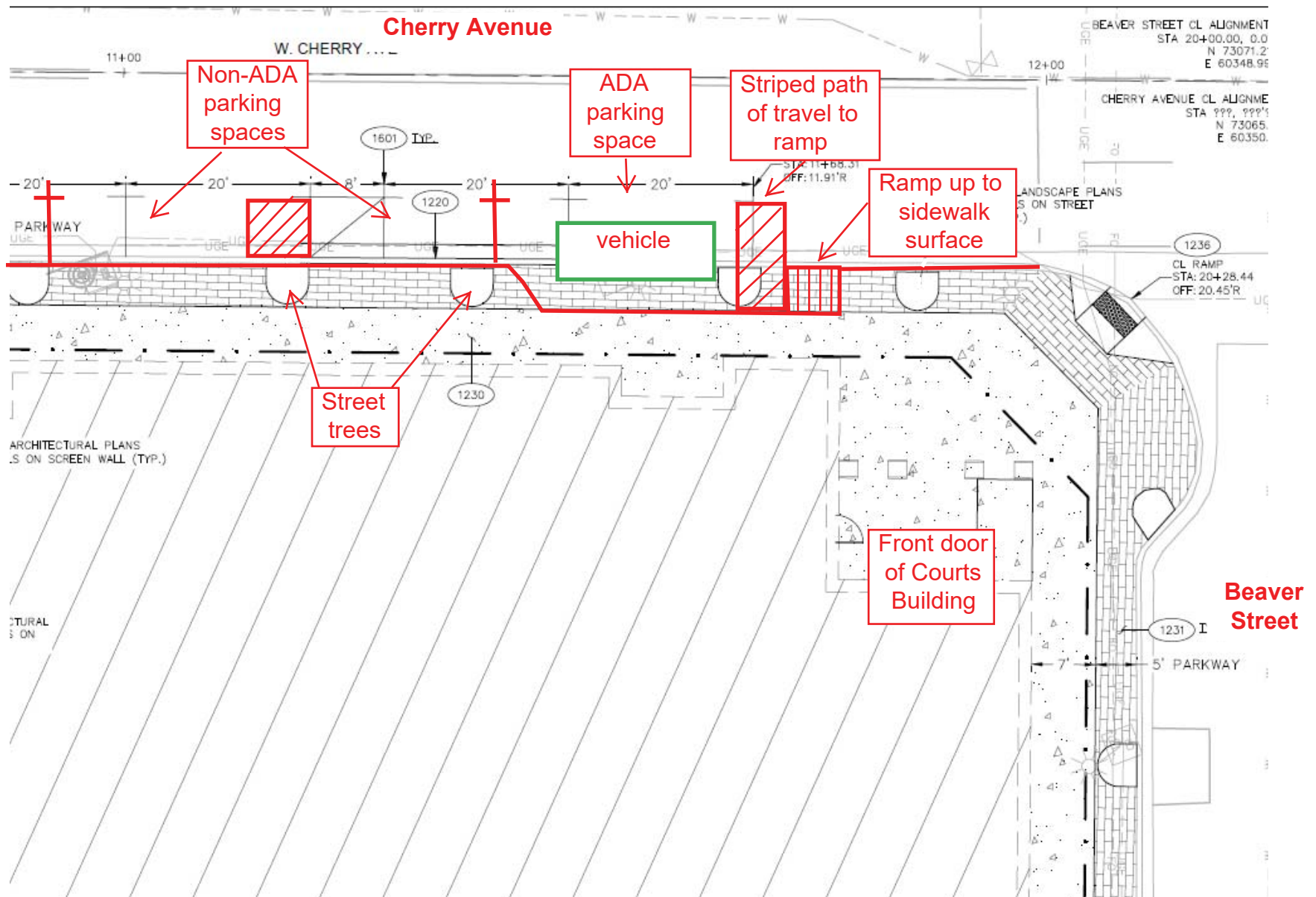
If staff parking were to be reconfigured to include room for public ADA spots, the staff spaces would be reduced to approximately thirteen spaces. This would also require redesign of an access ramp to a staff building entrance which may not be feasible, and relocation of major mechanical components that would incur additional costs. The project team recommends keeping as many secure spaces of the on-site staff parking as possible.

Thank you for your time in considering these options and our recommendation. Staff will be planning a Council work session discussion to solicit Council comments and determine our path forward.

EXHIBIT A



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Flagstaff City Council

City Court Facility Project

ADA Accessible Parking Discussion

May 14, 2019





ADA Accessible Parking Options

- **Modifying the Doris Harper-White Playhouse parking lot**
- **Modifying on-street parking adjacent to the new Court building**
- **Procuring adjacent private property rights for ADA spaces**
- **Modifying secure Court staff parking**



Modify Secure Court Staff Parking

- Parking lot security follows the recommendations and best practices from the Arizona Supreme Court for staff safety.
- Secure parking works in conjunction with other building security features: secured access entry for staff offices, and separate corridors, stairwells and elevators for staff and public.
- Court and prosecutor's staff have been subjected to hostile citizens and armed citizens trying to intimidate staff.
- Requires redesign of an access ramp to a staff building entrance which may not be feasible, and relocation of major mechanical components that would incur additional costs.



Procure Adjacent Private Property

- No security in City ownership
- Courts would have to either purchase the property or carry a long-term lease
- The cost for this option is not currently considered within the Court project budget



Modifying the Playhouse Parking

- Includes turning two non-ADA spaces into one ADA accessible space on east end of parking lot
- Adds one non-ADA space on the west end of the lot



Modify On-Street Parking

- Includes asphalt and curb/gutter removal and replacement, and an additional pedestrian ramp.
- Includes added expense for surveying and redesign, permitting for work within the right-of-way.
- The roadway crown and slope would need to be modified to satisfy ADA requirements and make surface drainage work.
- Necessitates using an area which was originally designated as pedestrian space/parkway and losing one street tree.



Staff's Recommended Option



Modify On-Street Parking

- Provide two ADA compliant spaces on Cherry Avenue in front of the new courthouse
- Two ADA spaces remain at Doris Harper-White Playhouse parking lot
- ADA spaces Route 66 & Beaver Street (old courthouse site)

CITY OF FLAGSTAFF STAFF SUMMARY REPORT

To: The Honorable Mayor and Council
From: Stacy Saltzburg, City Clerk
Date: 05/09/2019
Meeting Date: 05/14/2019



TITLE

Discussion: Developing a policy to prioritize water uses in times of shortage, in the context of public investment, and for community planning

STAFF RECOMMENDED ACTION:

Discussion/Direction

EXECUTIVE SUMMARY:

Councilmember Whelan provided the Future Agenda Item Request on January 15, 2019, which was supported by the required number of Councilmembers.

INFORMATION:

Attachments:

CITY OF FLAGSTAFF STAFF SUMMARY REPORT

To: The Honorable Mayor and Council
From: Stacy Saltzburg, City Clerk
Date: 05/09/2019
Meeting Date: 05/14/2019



TITLE

Discussion: Continue communicating with the Arizona Board of Regents and invite them to a meeting or send a letter with concerns about impacts on the City.

STAFF RECOMMENDED ACTION:

Discussion/Direction

EXECUTIVE SUMMARY:

Councilmember Whelan provided the Future Agenda Item Request on March 5, 2019, which was supported by the required number of Councilmembers.

INFORMATION:

Attachments: