

WORK SESSION AGENDA

CITY COUNCIL WORK SESSION
TUESDAY
SEPTEMBER 8, 2026

COUNCIL CHAMBERS
211 WEST ASPEN AVENUE
3:00 P.M.

All City Council Meetings are live streamed on the city's YouTube page
(<https://www.youtube.com/@FlagstaffCityGovernment>)

To provide online verbal comment on an item that appears on the posted agenda, use the link below.

[ONLINE VERBAL PUBLIC COMMENT](#)

Written comments may be submitted to publiccomment@flagstaffaz.gov.

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 discussion and consultation 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. Roll Call

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

MAYOR DAGGETT
VICE MAYOR SWEET
COUNCILMEMBER ASLAN
COUNCILMEMBER GARCIA

COUNCILMEMBER HOUSE
COUNCILMEMBER MATTHEWS
COUNCILMEMBER SPENCE

3. Pledge of Allegiance, Mission Statement, and Land Acknowledgement

MISSION STATEMENT

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

LAND ACKNOWLEDGEMENT

The Flagstaff City Council humbly acknowledges the ancestral homelands of this area's Indigenous nations and original stewards. These lands, still inhabited by Native descendants, border mountains sacred to Indigenous peoples. We honor them, their legacies, their traditions, and their continued contributions. We celebrate their past, present, and future generations who will forever know this place as home.

4. Open Call to the Public

Open Call to the Public enables the public to address the Council about an item that is not on the prepared agenda. Comments relating to items that are on the agenda will be taken at the time that the item is discussed. Open Call to the Public appears on the agenda twice, at the beginning and at the end. The total time allotted for the first Open Call to the Public is 30 minutes; any additional comments will be held until the second Open Call to the Public.

If you wish to address the Council in person at today's meeting, please complete a comment card and

submit it to the recording clerk as soon as possible. Your name will be called when it is your turn to speak. You may address the Council up to three times throughout the meeting, including comments made during Open Call to the Public and Public Comment. Please limit your remarks to three minutes per item to allow everyone 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. PROCLAMATIONS

A. Proclamation: Hispanic Heritage Month

Read and present the Proclamation.

6. Public Works Accreditation Update

Provide an update to the Mayor, Council and the greater community on the Public Works division accreditation.

7. 2024 Suite of Codes Presentation and Adoption Update

Present the proposed 2024 Suite of Building and Fire Codes and local amendments to City Council, obtain feedback and direction from Council, and confirm support for advancing the code adoption package to first reading on September 15, 2026.

8. Open Call to the Public

9. Announcements and Updates to/from Council and City Manager

10. Adjournment

11. SPECIAL MEETING

A. Call to Order

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B. Consideration and possible action regarding Executive Session on September 8, 2026.

RECOMMENDED ACTION:

Direct and authorize the City Attorney and/or designated city representative to proceed as discussed in the Executive Session of September 8, 2026 items 5Ai.

C. Adjournment

THE CITY OF FLAGSTAFF ENDEAVORS TO MAKE ALL PUBLIC MEETINGS ACCESSIBLE TO PERSONS WITH DISABILITIES. With 48-hour advance notice, reasonable accommodations will be made upon request for persons with disabilities or non-English speaking residents. Please call the City Clerk (928) 213-2076 or email at stacy.saltzburg@flagstaffaz.gov to request an accommodation to participate in this public meeting.

NOTICE TO PARENTS AND LEGAL GUARDIANS: Parents and legal guardians have the right to consent before the City of Flagstaff makes a video or voice recording of a minor child, pursuant to A.R.S. § 1-602(A)(9). The Flagstaff City Council meetings are live-streamed and recorded and may be viewed on the City of Flagstaff's website. If you permit your child to attend/participate in a televised Council meeting, a recording will be made. You may exercise your right not to consent by not allowing your child to attend/participate in the meeting.

**CITY OF FLAGSTAFF
STAFF SUMMARY REPORT**

To: The Honorable Mayor and Council
From: Jessica Matias, Chief of Staff
Date: 07/14/2026
Meeting Date: 09/08/2026



TITLE:

Proclamation: Hispanic Heritage Month

DESIRED OUTCOME:

Read and present the Proclamation.

Executive Summary:

N/A

Information:

N/A

Attachments: [Proclamation](#)

CITY OF FLAGSTAFF — OFFICE OF THE MAYOR

PROCLAMATION

WHEREAS, National Hispanic Heritage Month, also called “Mes de Herencia Hispana” observed annually from September 15th to October 15th, honors the histories, cultures, and contributions of Americans with ancestry from Spain, Mexico, the Caribbean, and Central and South America; and

WHEREAS, September 15th is significant as the Independence Day for several Latin American countries, including Costa Rica, El Salvador, Guatemala, Honduras, and Nicaragua, with Mexico's independence day on September 16th and Chile's on September 18th; and

WHEREAS, this month provides an opportunity to acknowledge the diversity and cultural richness of the Hispanic community; and

WHEREAS, the theme for National Hispanic Heritage Month 2026, "**Unidos, Somos Más: Together, We Are More,**" promotes inclusivity and unity for building stronger communities and a stronger nation; and

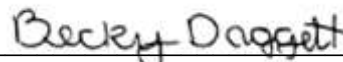
WHEREAS, The Hispanic, Latino/a and Latine communities have been integral to the prosperity of Flagstaff. Starting from the 1920s, these communities continue to be represented in Calaveras, Los Chantes, La Plaza Nueva, La Plaza Vieja, and many other areas of Flagstaff; and

WHEREAS, Hispanic communities are represented in City and County leadership, services in education, business, medicine, social services, military service, and veterans' organizations, and visible through non-profit organizations such as Ballet Folklórico de Colores and Nuestras Raíces; and

NOW, THEREFORE, I, Becky Daggett, Mayor of the City of Flagstaff, Arizona do hereby proclaim September 15th through October 15th, 2026, as

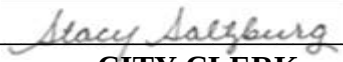
HISPANIC HERITAGE MONTH

and urge all residents of Flagstaff to observe this month by celebrating the rich history and culture of our Hispanic communities, attending local cultural events, and supporting local civic organizations.



MAYOR

ATTEST:



CITY CLERK

**CITY OF FLAGSTAFF
STAFF SUMMARY REPORT**

To: The Honorable Mayor and Council
From: Scott Overton, Public Works Division Director
Date: 08/25/2026
Meeting Date: 09/08/2026



TITLE:
Public Works Accreditation Update

DESIRED OUTCOME:

Provide an update to the Mayor, Council and the greater community on the Public Works division accreditation.

Executive Summary:

The city of Flagstaff Public Works division has been working with the American Public Works Association (APWA) to achieve agency accreditation and the formal definition of becoming an accredited agency. This nearly 3-year-long effort has required the division's professional and skilled staff to evaluate all practices and a review of all services provided to the community. The accreditation process is summed up in 5 distinct segments.

1. Self-evaluation stage — An organized internal evaluation of the division's directives, procedures, planning and practices that guide the core services provided to the community.
2. Application stage - A formal submittal of all supporting documentation and evidence to demonstrate our compliance with the professional organizations' best practices and recommended compliance with each program or service provided.
3. Improvement stage - A formal internal review of the documentation and cooperation across the division resulting in modifications or updates to conform with best practices, strong efficiency and/or modified delivery.
4. Evaluation - A formal outside review of the accreditation documentation and onsite visit by public works professionals that are subject-matter experts and trained in evaluation of agencies seeking accreditation.
5. Accreditation - Upon a successful evaluation, the recommendation of the evaluators is forwarded to the APWA accreditation council and the agency status is determined.

Once accredited, the public works division has demonstrated the strongest understanding of the services provided and good community benefits. The documentation and all supporting exhibits will continue to be refined and scoped with a formal review every 4 years. The re-evaluation accreditation is a less intense process but will ensure a constant focus on improvement and a strong commitment to the public works profession. In the attached exhibit, you will find an excellent work product of the division that establishes a new mission statement and supporting values.

Information:

N/A

Attachments: [PW Mission and Values](#)



MISSION

WE ARE COMMITTTED TO PROVIDING DEPENDABLE ESSENTIAL
SERVICES TO STRENGTHEN AND ENHANCE OUR COMMUNITY
FOR GENERATIONS TO COME.

VALUES

◆ PERFORM ALL RESPONSIBILITIES WITH INTEGRITY

◆ FOSTER STRONG COLLABORATION FOR THE SUCCESS OF ALL

◆ PROVIDE THE HIGHEST LEVEL OF SERVICE

◆ ENSURE ACCOUNTABILITY OF ACTIONS AND COMMITMENTS

◆ COMMITTED TO SAFETY



SERVING TODAY · BUILDING TOMORROW · TOGETHER

CITY OF FLAGSTAFF STAFF SUMMARY REPORT

To: The Honorable Mayor and Council
From: Amy Tressler, Building Safety & Code Compliance/ Building Official
Co-Submitter: Richard Stanionis
Date: 06/01/2026
Meeting Date: 09/08/2026



TITLE:
2024 Suite of Codes Presentation and Adoption Update

DESIRED OUTCOME:

Present the proposed 2024 Suite of Building and Fire Codes and local amendments to City Council, obtain feedback and direction from Council, and confirm support for advancing the code adoption package to first reading on September 15, 2026.

Executive Summary:

Building Safety and Flagstaff Fire are proposing to adopt the latest suite of model construction codes developed by the International Code Council (ICC) and other nationally recognized standards organizations. The proposed codes, including local amendments, consist of the following:

- 2024 International Building Code (IBC)
- 2024 International Residential Code (IRC)
- 2024 International Existing Building Code (IEBC)
- 2024 International Mechanical Code (IMC)
- 2024 International Plumbing Code (IPC)
- 2024 International Fuel Gas Code (IFGC)
- 2024 International Energy Conservation Code (IECC)
- 2024 International Swimming Pool and Spa Code (ISPSC)
- 2024 International Fire Code (IFC)
- 2024 International Wildland-Urban Interface Code (IWUIC)
- 2023 NFPA 70 National Electrical Code (NEC)
- ICC A117.1-2017 Standard for Accessible and Usable Buildings and Facilities

The City of Flagstaff currently enforces the 2018 editions of the International Codes, including the 2018 IBC, IRC, IEBC, IMC, IPC, IFGC, IECC, ISPSC, IFC, 2006 IWUIC, 2017 National Electrical Code, and ICC A117.1-2017 Standard for Accessible and Usable Buildings and Facilities. The proposed adoption would update the City's construction regulations to the most current code editions and industry standards.

The International Code Council (ICC) updates and publishes model codes on a three-year cycle. Historically, the City of Flagstaff has adopted the codes every other cycle, or approximately every six years, which aligns with the adoption practices of many jurisdictions throughout Arizona. The proposed adoption continues this approach while allowing the City to benefit from advancements in building safety, resiliency, energy efficiency, accessibility, and construction technology.

Adopting the latest code editions provides numerous benefits to the community, including maintaining consistent minimum safety standards, protecting public health and welfare, incorporating modern construction methods and technologies, improving building performance and energy efficiency, increasing community resiliency, supporting sustainability goals, and helping reduce long-term operating and maintenance costs for building owners. Updated codes may also contribute to lower insurance premiums through enhanced construction standards and improved hazard mitigation measures.

Throughout the code adoption process, Building Safety, Sustainability, and Fire staff have worked collaboratively with stakeholders, industry professionals, Boards and Commissions, neighboring jurisdictions, and the public to evaluate the proposed code changes and develop local amendments tailored to the needs of the Flagstaff

community.

The City Attorney's Office is continuing its review of the proposed local amendments. Any substantive changes resulting from that review will be presented and identified during the Council work session and subsequent adoption hearings.

Information:

Throughout the past year, Building Safety, Sustainability, and Fire staff have worked collaboratively to evaluate the 2024 International Code Council (ICC) suite of codes and develop proposed local amendments that align with the City of Flagstaff's goals, priorities, and community needs. Significant effort has been dedicated to stakeholder outreach, public education, and engagement throughout the code adoption process.

Staff conducted multiple public outreach sessions and open houses, presented information to Boards and Commissions, the Chamber of Commerce, and various stakeholder groups, and utilized social media and other communication platforms to increase public awareness of the proposed code changes. Sustainability staff also conducted direct outreach and presentations to numerous organizations and stakeholders to discuss the proposed energy and sustainability-related provisions.

Building Safety met with the Building and Fire Code Board of Appeals on four separate occasions to review the proposed code amendments and receive feedback and recommendations. Staff carefully evaluated the Board's recommendations and incorporated revisions where appropriate. Throughout the process, Building Safety, Sustainability, and Fire staff worked closely together to ensure the proposed codes and amendments support the City's adopted goals related to safety, sustainability, resiliency, housing, and long-term community development. The outreach effort targeted a broad range of stakeholders, including internal City staff, contractors, design professionals, homeowners, developers, trade organizations, and representatives from other jurisdictions. To maximize public participation, Building Safety, Sustainability, and Fire hosted two community open houses and conducted additional outreach through inspection visits, email notifications, and direct communication with local design professionals and industry partners. Building Safety inspectors distributed informational flyers at inspection sites over a three-week period, while staff promoted participation through email, phone calls, and professional networks.

The City of Flagstaff and Coconino County also collaborated throughout the code adoption process, regularly sharing information and coordinating proposed amendments where feasible. This partnership helped promote consistency between jurisdictions and reduce potential challenges for contractors, design professionals, and property owners who routinely work across jurisdictional boundaries.

Attendance at the two public open houses totaled ten participants. In addition to comments received during public meetings and outreach events, staff received feedback through direct stakeholder discussions, Board of Appeals meetings, and ongoing coordination with industry professionals and partner agencies.

Attachments:

[Presentation](#)

[2024 Building Codes and Amendments](#)

[Building Code Cost Summary](#)

[2024 Building Codes Significant Changes](#)

[Energy Code + Radon Supplementary Information](#)

[2024 IFC and IWUIC Codes and IFC Amendments](#)

[2024 IFC Cost Summary](#)

[2024 IFC Significant Changes Summary](#)

[2024 International Wildland Urban Interface Code Amendments](#)

[2024 IWUIC Cost Summary](#)

2024 Suite of Building & Fire Codes

Amy Tressler, Building Official

Rick Stanionis, Building Inspection Manager

Tamara Lawless, Water Conservation Manager

Genevieve Pearthree, Senior Sustainability Planner

Neil Chapman, Wildland Fire Captain

Chris Jack, Fire Marshal



Agenda

- **Purpose & Need for Code Adoption**

Why update now and why adopt the complete code suite

- **Community & Regional Engagement**

Stakeholder outreach, public feedback, and Coconino County coordination

- **2024 Suite of Codes**

Proposed Local Amendments & Key Changes

Energy, Fire, and Wildland Urban Interface Codes

- **Summary**

Cost & Housing Affordability Considerations

Adoption Timeline & Next Steps

This afternoon's work session is for discussion and direction; no formal adoption action is requested.

Why Update the Building & Fire Codes?

The International Codes are updated every 3 years to reflect:

- Advances in building and life safety
- Lessons learned from building failures and disasters
- New construction technologies and materials
- Improved building performance and energy efficiency
- Current industry standards and best practices

Current codes support safer, more durable and resilient communities.

Why Update Now

2018 → 2024

- Flagstaff currently operates under the 2018 International Codes
- Moving to 2024 maintains the City's six-year adoption cycle
- A six-year cycle is consistent with many Arizona jurisdictions
- Local amendments allow Flagstaff to address community priorities and local conditions

Why It Matters in Flagstaff

Our Conditions

- Heavy snow
- Freeze/thaw cycles
- Cold winters
- High-elevation climate

Our Goal

- Safe and durable buildings
- Resilient construction
- Long-term building performance
- Regional consistency where practical

International model codes + targeted local amendments = standards appropriate for Flagstaff

What Codes Protect

LIFE SAFETY

Structural • Fire • Electrical • Mechanical

PUBLIC HEALTH

Air Quality • Water • Sanitation • Moisture Protection

PROPERTY & INVESTMENT

Durability • Resilience • Long-Term Performance

Building codes establish minimum standards—not maximum design standards.

2024 Suite of Building and Fire Codes

Amy Tressler, Building Official

Rick Stanionis, Building Inspection Manager

Tamara Lawless, Water Conservation Manager



2024 Suite of Codes

- 2024 International...
 - **Building Code (IBC)**
 - **Energy Conservation Code (IECC)**
 - **Existing Building Code (IEBC)**
 - **Fire Code (IFC)**
 - **Fuel Gas Code (IFGC)**
 - **Mechanical Code (IMC)**
 - **Plumbing Code (IPC)**
 - **Residential Code (IRC)**
 - **Swimming Pool and Spa Code (ISPSC)**
 - **Wildland Urban Interface Code (IWUIC)**
- Other Adopted Standards & Codes
 - 2023 NFPA 70 - National **Electrical Code (NEC)**
 - ICC A117.1-2017 **Accessible and Usable** Buildings and Facilities
 - Uniform Code for the **Abatement of Dangerous Buildings** (1997)
 - Uniform Administrative Code (1997)
 - Uniform Housing Code (1997)

Why Adopt the Entire Suite of Codes?

The International Codes are designed to work together as a coordinated system.

- Codes frequently reference requirements in other codes within the same cycle
- Mixing code editions can create conflicting definitions, references, and requirements
- A coordinated suite improves consistency during design, plan review, and inspections
- Provides greater predictability for property owners, designers, contractors, and developers

Community Outreach & Regional Coordination

PUBLIC OUTREACH

- May 12 – Murdoch Center
- May 13 – City Hall

STAKEHOLDER & COMMISSION ENGAGEMENT

- Greater Flagstaff Chamber of Commerce
- Housing Commission
- Sustainability Commission
- Building & Fire Code Board of Appeals

REGIONAL COORDINATION

- Ongoing collaboration with Coconino County
- Shared research and proposed amendments
- Alignment where practical

What We Heard

- **Housing & Affordability**
- Construction cost impacts
- Housing development
- **Energy & Sustainability**
- Energy efficiency
- Solar and EV readiness
- **Building Requirements**
- Snow loads
- Radon
- Permit requirements

- **Fire & Wildfire Resilience**
- WUI requirements
- Defensible space
- Insurance concerns
- **Regional Consistency**
- Coconino County alignment
- Implementation and training

Stakeholder feedback helped shape proposed local amendments and cost-mitigation strategies.

Why Local Amendments?

Local amendments allow Flagstaff to:

- Address our unique climate and environmental conditions
- Preserve practical and cost-effective construction methods
- Reduce unnecessary impacts on housing affordability
- Balance **safety • durability • energy efficiency • affordability • constructability**

The goal is to tailor the model codes to Flagstaff—not reduce life-safety standards

Key Building Safety Amendments

SNOW LOAD

60 psf → 70 psf ground snow load

Engineered design options remain available

TEMPORARY CERTIFICATE OF OCCUPANCY

Limited residential TCO option when life-safety requirements are complete

PERMIT EXPIRATION

2-year base permit + one 365-day extension

Maximum: 3 years

PLUMBING EFFICIENCY

1.28 gpf WaterSense fixtures and updated water-efficiency requirements

2024 IPC Code Update

Improved Efficiency and Added Performance Ratings

- Higher efficiencies for showerheads and bathroom faucets
 - Staff did a survey of locally available fixtures and found majority on shelves already comply with these requirements
 - Bathroom faucets: 2.2 gpm to 1.5 gpm
 - Showerheads: 2.5 gpm to 1.8 gpm
- Toilet efficiency stays the same (1.28 gpf since 2009) but adding requirements for performance through both EPA WaterSense and Maximum Performance (MaP) testing – 600 grams per flush
 - Over 2,000 options that meet these criteria, not more expensive than traditional
- These proposed amendments are part of the Water Conservation Strategic Plan, approve by City Council in 2020

Most Building Code Changes Have Minimal Cost Impact

Minimal or No Measurable Cost Impact

- Administrative and procedural updates
- Code clarifications and reorganized provisions
- Most permit and inspection changes
- Most life-safety and structural updates

Example — Snow Load

60 → 70 psf ground snow load

Minimal anticipated impact for most projects using engineered truss systems

Energy-code costs and savings are addressed in the next section.

2024 International Energy Conservation Code (IECC) and Radon Mitigation

Genevieve Pearthree, AICP
Senior Sustainability Planner



Discussion

Consider and adopt recommended path forward to update Flagstaff's Energy Code

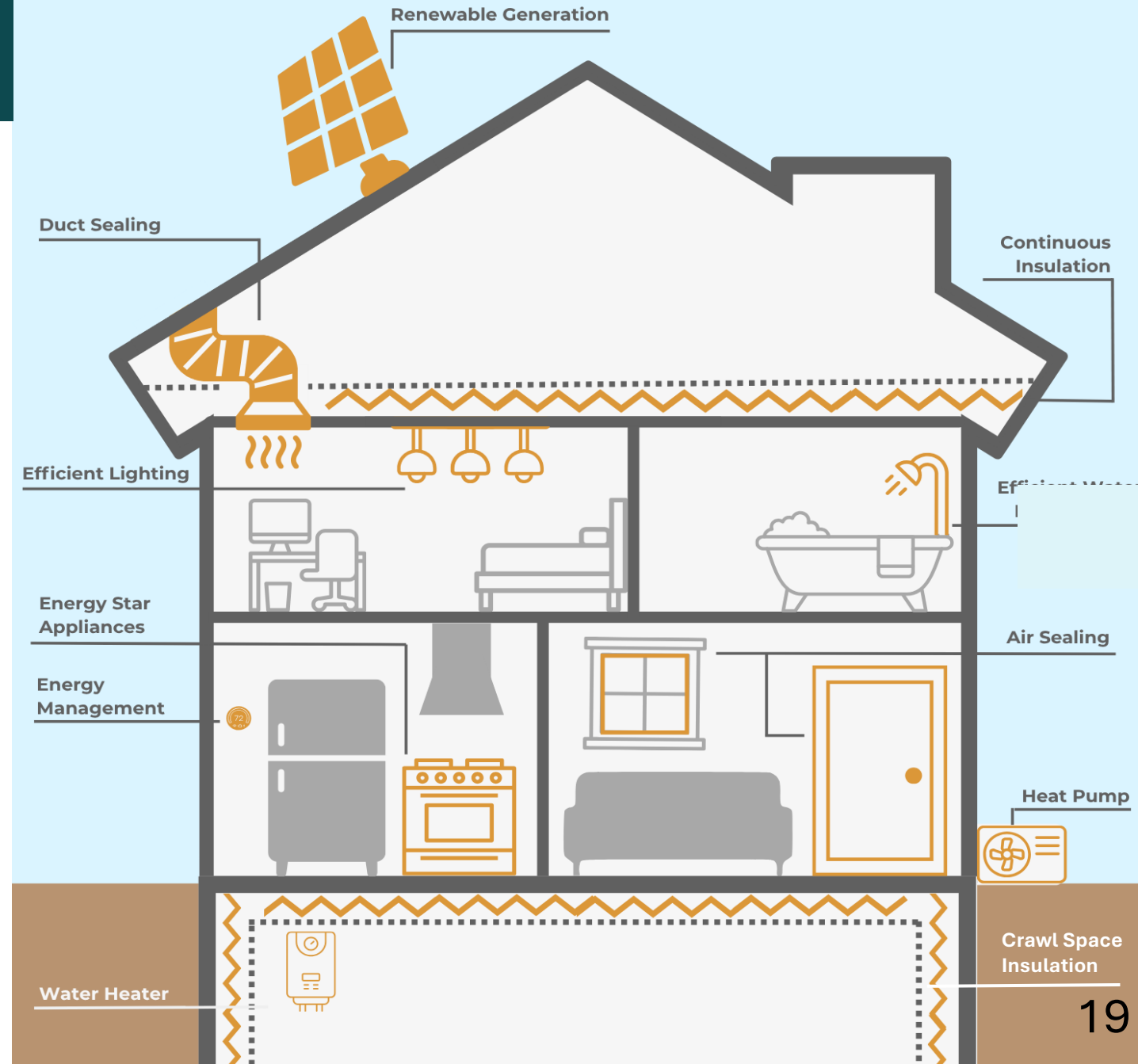
1. Rational for updating Flagstaff's Energy Code
2. Recommended path forward
3. Analysis of estimated cost impacts
4. Summary of key impacts of updating Flagstaff's Energy Code

Why is the Energy Code important?

-  **Utility Savings:** Sets minimum efficiency standards for new buildings, which helps lower monthly costs, protect residents from rising energy rates, and helps promote electrical grid stability
-  **Safety and Resilience:** Improved insulation and weatherization prepares homes for extreme temperatures—making them safer and more comfortable
-  **Affordability:** Reduced operational costs make housing more sustainable for residents over the long term
-  **Advance City Climate Goals:** One of the most impactful, cost-effective actions to reduce emissions and prepare Flagstaff for a changing climate

What the 2024 Energy Code regulates

1. Insulation amount & location
2. Window & skylight efficiency
3. Ductwork design
4. Duct & building envelope testing
5. Appliances, mechanical systems
6. Lighting, electrical outlets
7. Gas fireplaces, heaters
8. Pumps, piping, circulation systems, etc.



The 2024 Energy Code only applies to new construction

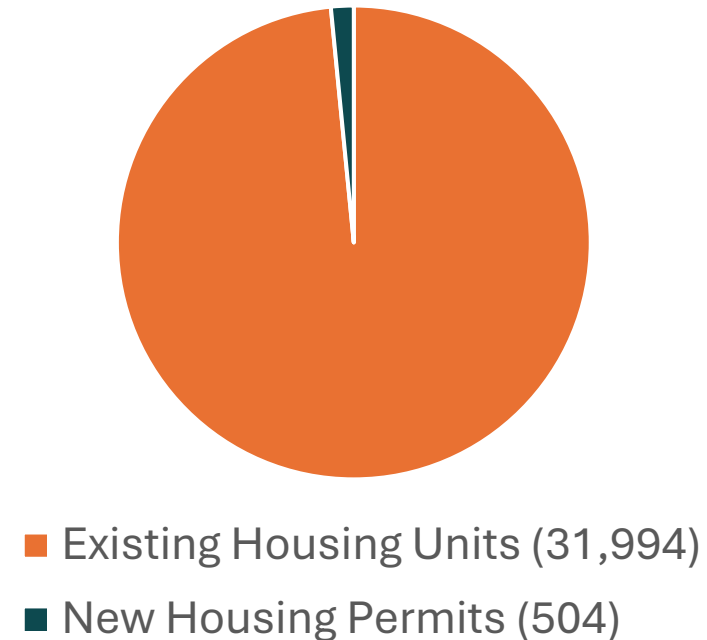
ONLY applies to:

- New construction, including new buildings, and additions, major alterations, and changes of occupancy in existing buildings

Does NOT apply to:

- Repairs and routine maintenance

Flagstaff Building Permits for New Housing Units in 2025 vs. Existing Housing



Flagstaff is Not Alone

- The 2024 Energy Code was **developed by thousands of national building science experts over a rigorous 3-year process**
- It has been **adopted by jurisdictions across the U.S.**, examples include:

Arizona cities:

- Avondale
- Bisbee
- Chandler
- Glendale
- Goodyear
- Maricopa
- Mesa
- Phoenix
- Sahuarita
- Surprise
- Tempe
- Tucson

States:

- Colorado
- Delaware
- Illinois
- New York
- Nevada
- North Dakota

Recommended Path Forward: Energy Code

Community outreach and engagement on the Energy Code

Since January, staff have provided 16 presentation to interested groups and City Commissions, as well as contacted 50+ experts, including:

- Builders
- Contractors
- Developers
- Energy policy experts
- Utility representatives
- Lenders
- Realtors
- Energy efficiency practitioners
- Solar installers
- Radon testers
- Advocates



Their feedback directly shaped staff recommended path forward...

Recommended Path Forward

Option 1	No change Remain on the 2018 energy code	
Option 2	Stay on Flagstaff's current path Continue using base codes: Adopt the 2024 energy code + readiness appendices + radon mitigation	Adopt now
Option 3	Progress to net-zero An intermediate step beyond the base code, prioritizing energy efficiency	<i>Consider adopting in the future (as part of the LASS/CAP code updates)</i>
Option 4	Net-zero-ready Buildings can become net-zero with the future addition of solar panels	

Adopt Energy Code “Option 2”

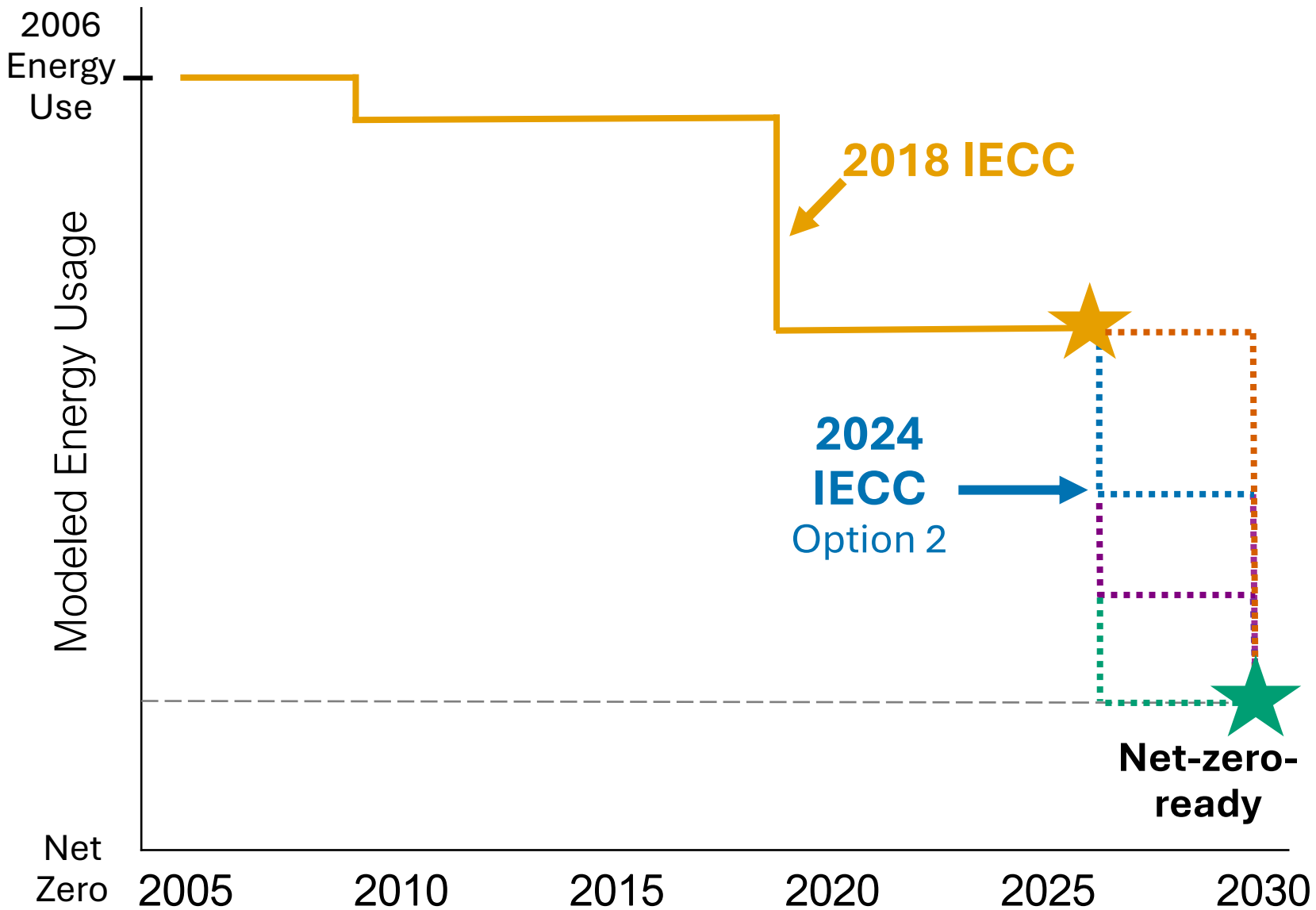
1. Adopt the 2024 Residential and Commercial Energy Codes as part of the 2024 Suite of Building and Fire Codes, including:

- Amendments to improve HVAC efficiency (residential) and to reduce costs
- Readiness appendices:
 - *Solar-ready*
 - *EV charging*
 - Electric-ready
 - Demand-responsive controls (commercial)

2. Adopt radon mitigation standards for new construction

The Path to Net Zero

International Energy Conservation Code (IECC)



 Current Flagstaff energy code

 Where we are today

 **Option 1**
0% improvement

 **Option 2**
15%+ efficiency improvement over current code

 **Option 3**
24%+ improvement

 **Option 4**
31%+ improvement

 **Net-zero ready**
becomes net-zero with renewable energy

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Residential Energy Code & readiness appendices

Impact: ~15% improvement in energy efficiency, ~13% energy cost savings

Energy Code amendments

- **Allow** apartment buildings > 3 stories to use the Residential Energy Code
- **Add** efficiency standards for gas furnaces & heat pumps (new construction)*
- **Reduce** the minimum insulation standard (prescriptive path only)
- **Delete** requirements for automatic light switches

Readiness appendices

- Electric-ready
- Solar-ready*
- Electric vehicle charging*

* Fully or partially included in Flagstaff's current code

Commercial Energy Code & readiness appendices

~**Impact: 22%** improvement in energy efficiency, ~**20%** energy cost savings

Energy Code amendments

- **Allow** apartment buildings > 3 stories to use the Residential Energy Code
- **Reduce** the minimum insulation standard (prescriptive path only)
- **Delete** requirements for automatic outlets
- Make energy monitoring and renewable energy requirements **optional**

Readiness appendices

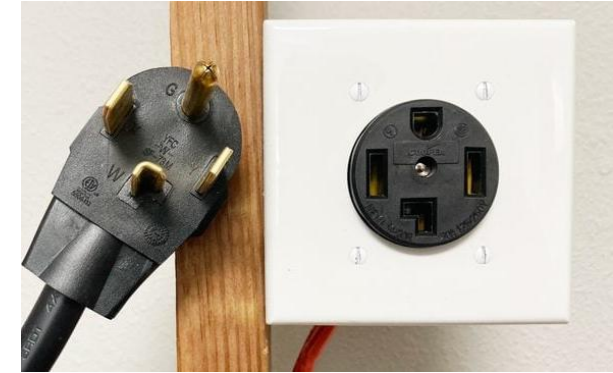
- Electric-ready
- Electric vehicle charging*
- Solar-ready*
- Demand responsive controls

* Fully or partially included in Flagstaff's current code

Electric-ready appendices

Benefits

- **Future readiness:** New standards enable seamless switching to high-efficiency electric appliances as technology advances
- **Cost savings:** Empowers residents and businesses to choose their preferred appliance type without expensive retrofits



Residential (Appendix RB/NB, RL)

- Outlets positioned close to dryers, stoves, and water heaters
- Sufficient electrical panel capacity to support future electric appliances

Does not require the installation of one appliance type over another

Commercial (Appendix CB)

- Infrastructure to support future electric space and water heating equipment
- Construction plans indicate future equipment locations
- Electrical panel capacity to support future equipment
- Outlets positioned close to dryers, stoves, and water heaters

Solar-ready appendices

Benefits

- **Future readiness:** Make it easier for residents and businesses to install future solar panels or solar thermal systems
- **Cost savings:** Empowers residents and businesses to install solar systems and avoid expensive retrofits to the roof and electrical panel



Residential (Appendix RB/NB and RL) and Commercial (Appendix CH)

- Require showing solar-readiness on construction plans and reserved space on the electrical service panel

Does not require the installation of solar panels

Electric vehicle charging appendices

Benefits

- **EVs in Flagstaff are growing:** Supports EV charging for Flagstaff residents, workers, and visitors
- **Increases EV equity:** Makes it easier for residents to charge EVs at-home, especially in apartments
- **Cost savings:** Avoids expensive and difficult retrofits to install EV charging infrastructure



Residential (RE/NE) and Commercial (Appendix CG)

- Match Flagstaff's current code for single-family homes and homes with garages (240 volt outlet)
- Require 7% to 30% of multifamily parking spaces and 1% to 45% of commercial spaces to support EV charging; mostly for EV capable spaces (installing conduit only)
- Include exceptions to waive requirements if electric distribution capacity is not available, or if costs are prohibitive (multifamily only)
- Allow substitutions in EV space types to increase flexibility

Demand responsive controls appendix

Benefits

- **Future readiness:** Provides infrastructure to enable building owners and tenants to opt into demand response programs.
- **Cost savings:** Residents can opt into the [APS Cool Rewards](#) program and have lower utility bills in exchange for APS raising the thermostat a few degrees (up to 20 days/year)



Commercial (Appendix CI)

- Water and space heating can receive a demand response signal from APS, such as through a smart thermostat
- Does not require opting into demand response programs

Radon Mitigation

Benefits

- **Public health:** Reduce exposure to radon—one of the leading causes of lung cancer—by making it harder for radon to concentrate in buildings
- **Cost savings:** Installing radon mitigation at construction is the most effective and least expensive way to reduce radon exposure in buildings and reduces the need for expensive and difficult retrofits

Residential (IRC Appendix BE)

Radon Control Methods

- Block radon entry routes into a building and make it easier for radon to vent outside
- Install an electrical circuit to support a future radon fan
- Post-construction radon testing
- Install a radon fan (only if needed)

Commercial (IMC Section 511)

Sub Slab Soil Exhaust Systems

- Require a sub-slab soil exhaust system in most new commercial construction to make it easier for radon to vent outside

Estimated Cost Impacts

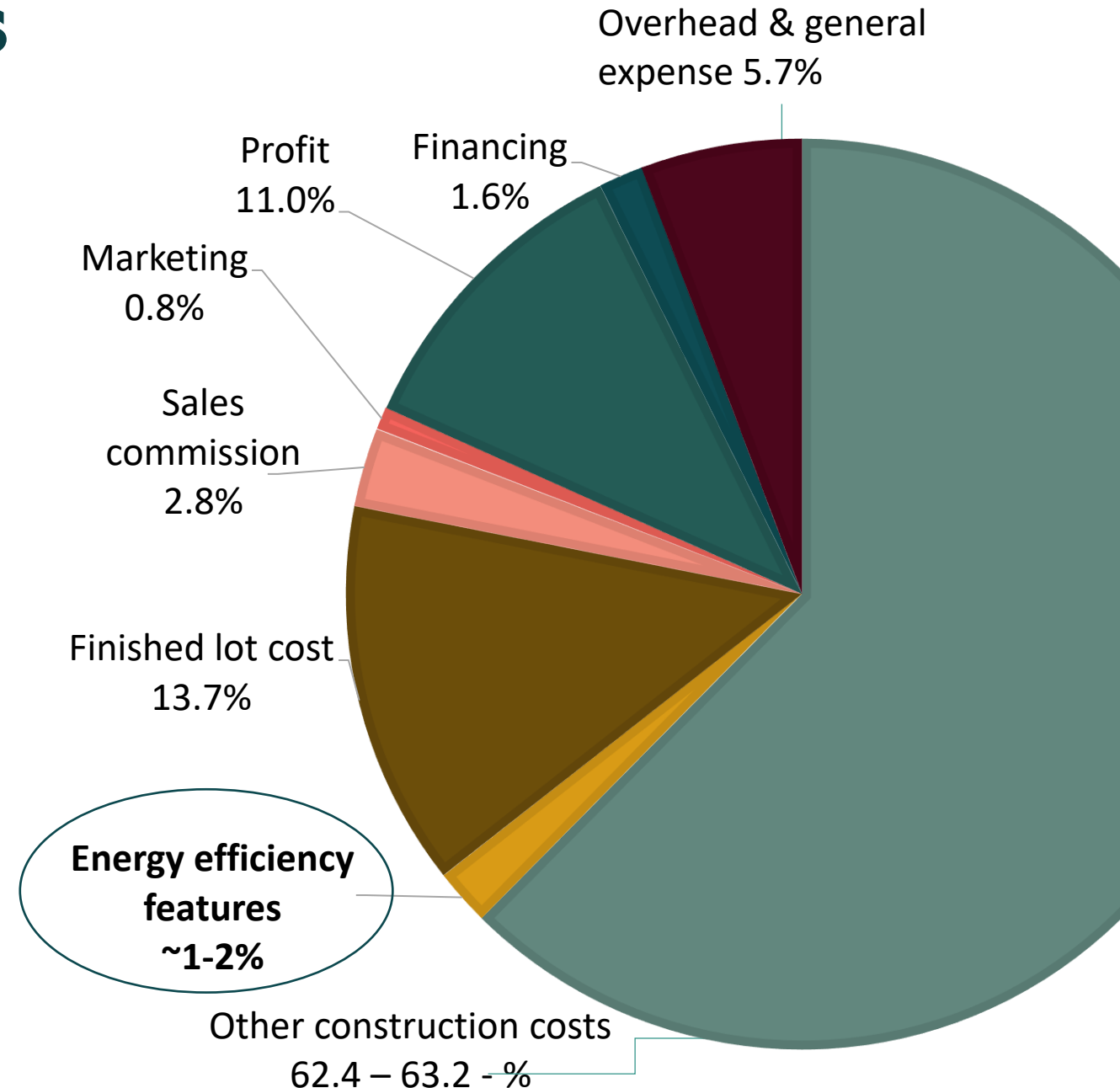
Energy Efficiency Features

Energy efficiency features account for about 1-2% of a new home's sale price

- Average sales price for a new single-family home in Flagstaff: \$954,000
- Average sales prices for a new condominium in Flagstaff: \$560,000

July 2026

Sources: Average new home sales price: Zillow.com (2026); Cost breakdown: National Association of Home Builders (2025), COF energy cost estimates (2026)



Cost estimates: Single-family + duplexes

Code Section	Upfront Cost 2,000 sf	Upfront Cost 1,250 sf	Cost Savings
2024 IECC Base Code	~\$7,000 ~\$1,100 – 15,700	~\$5,600 ~\$800 – 12,300	~13% reduction in energy costs
Electric-Ready Appendix	~\$1,200 ~\$1,010 – \$1,500	~\$1,200 ~\$1,010 – \$1,500	Avoids future retrofits ~\$1,500+ per appliance ~\$4,500+ total
Solar-Ready Appendix	~\$150*	~\$150*	Avoids future retrofits ~\$1,000+
EV Charging Appendix	~\$650*	~\$650*	Avoids future retrofits ~\$1,500+

* Already included in Flagstaff's current code.

These numbers represent average cost estimates based on the best available data.

36

Cost estimates: Multifamily (3+ units)

Code Section	Upfront Cost Per unit (800 sf)	Cost Savings
2024 IECC Base Code	~\$2,300 ~\$0 - 5,400	~13% reduction in energy costs
Electric-Ready Appendix	~\$1,200 ~\$1,010 – \$1,500	Avoids future retrofits ~\$1,500+ per appliance ~\$4,500+ total
Solar-Ready Appendix	~\$150*	Avoids future retrofits ~\$1,000+
EV Charging Appendix	~\$450 ~\$0 – 850	Avoids future retrofits ~\$1,500+

*Already included in Flagstaff's current code.

These numbers represent average cost estimates based on the best available data.

Cost estimates: Radon mitigation (residential)

Code Section	Upfront Cost Per Housing Unit	Cost Savings
Passive radon mitigation	~\$700 ~\$300 – 1,500	Minimizes the need to install a radon mitigation system later
Radon testing	~\$170 ~\$135 – 200	Testing at construction is less costly
Radon fan (active mitigation) <i>only if needed</i>	~\$2,250 ~\$2,200 – 2,300	

These numbers represent average cost estimates based on the best available data.

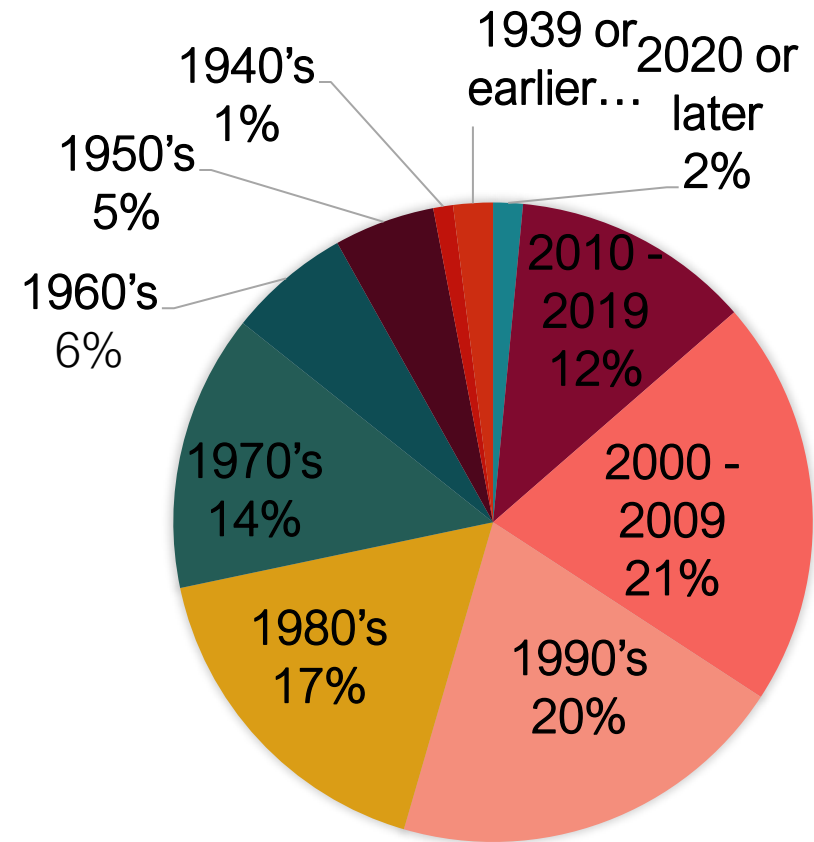
Benefits of Updating the Energy Code: **Investing in Flagstaff's Future**

Flagstaff's future housing stock

New construction is the most cost-effective time to improve energy efficiency

- These homes will be part of Flagstaff's housing stock for 50 to 100 years
 - Today's codes shape operational costs for decades
 - High-quality, durable construction supports multiple generations
 - Efficient new homes strengthen resilience to Flagstaff's changing climate

Flagstaff Home Construction by Decade



Energy efficiency and utility cost savings

- Updating the Energy Code can provide significant energy efficiency and utility cost savings
- On average, and compared to Flagstaff's current code, adopting the 2024 energy code in Flagstaff's climate zone is estimated to:

- Improve residential energy efficiency by **15%**
- Reduce residential energy costs by **13%**

- Improve commercial energy efficiency by **22%**
- Reduce commercial energy costs by **20%**

Safer, healthier, and more comfortable homes

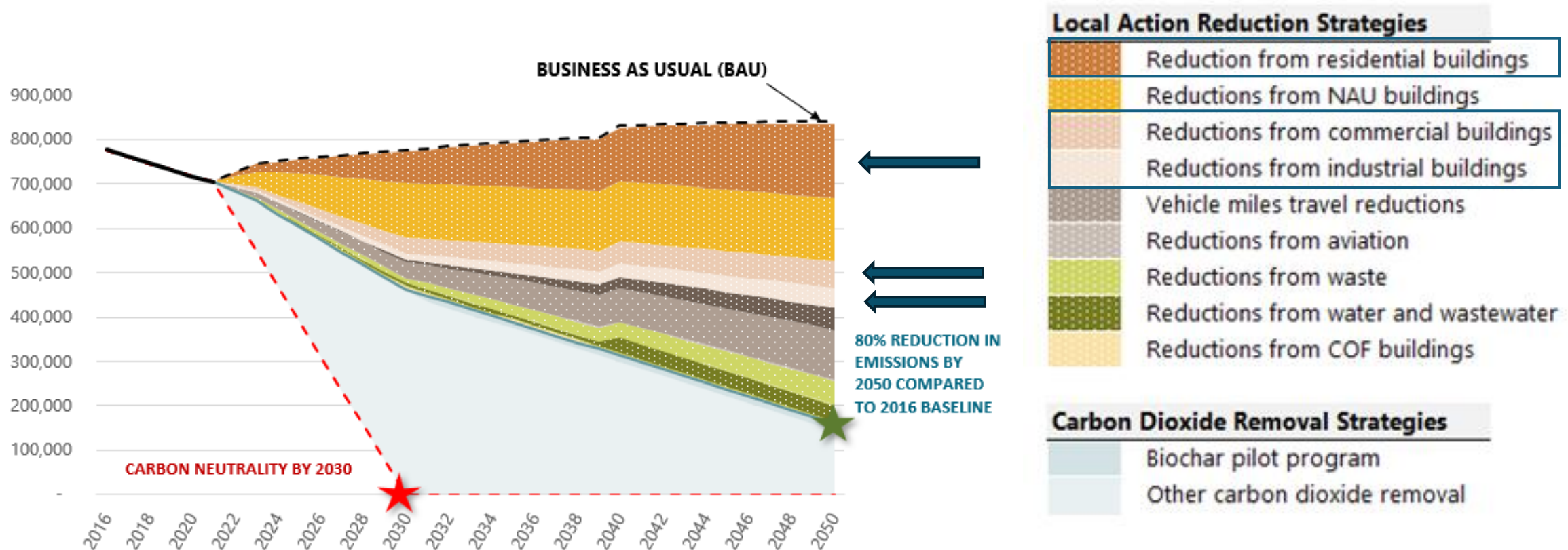
- Well-insulated, energy-efficient homes:
 - **Protect** from extreme weather and utility outages
 - **Reduce exposure** to harmful pollutants, including unplanned wildfire smoke
 - Tend to be **warmer in the winter and cooler in the summer**
- Mechanical ventilation systems and radon mitigation **improve indoor air quality**
- Energy-efficient homes enhance **passive survivability during power outages**



The most effective way to meet Flagstaff's climate commitments

Compared to Flagstaff's current code, the 2024 Energy Code is expected to **reduce greenhouse gas emissions from new buildings by 12% - 20%**

- Reducing emissions from buildings is critical to meeting Flagstaff's climate goals



In Closing

“Every new structure built to outdated standards locks in inefficiencies for decades — making retrofits costly, disruptive, and often out of reach.

Strong energy codes do more than save energy; they reduce utility bills, improve comfort, improve survivability in extreme weather, strengthen grid reliability, and cut greenhouse gas emissions.”

- Southwest Energy Efficiency Project (SWEET)



2024 International Wildland Urban Interface Code Update

Neil Chapman | Wildland Fire Captain



Why Now?

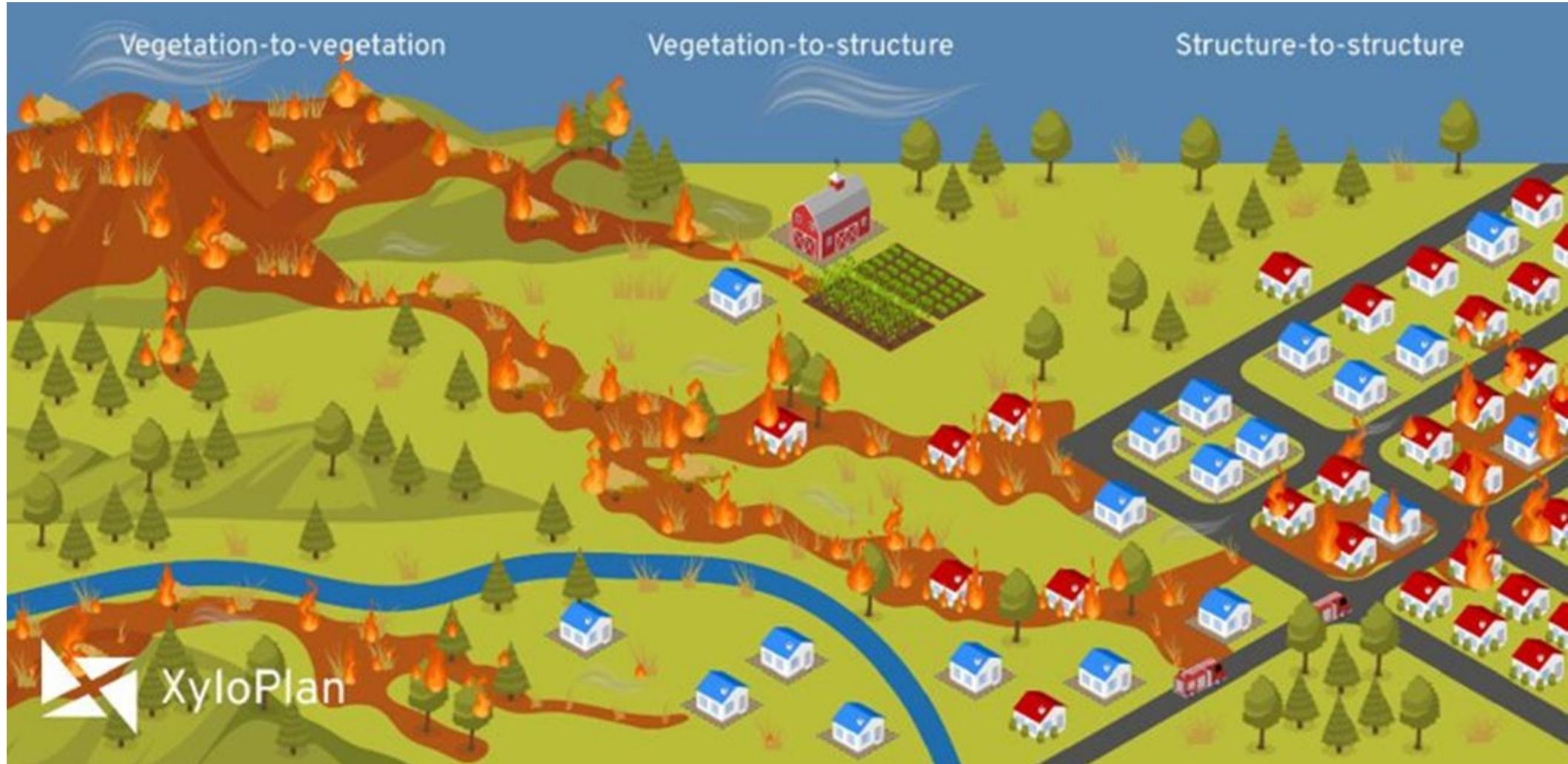
Wildland – Urban Interface (WUI) communities like Flagstaff must act now to mitigate both wildfire risk and the insurance driven conflicts that are negatively impacting current housing availability and new construction.

The move to a noncombustible construction code is aligned with both traditional WUI challenges and the high-density housing goals of the Regional Plan

Framing the Benefits – Fire & Wildland-Urban Interface Code

- **Fire codes** focus on preventing fires, protecting occupants, and supporting effective emergency response throughout a building's life.
 - **WUI codes** provide additional safeguards for buildings located in wildfire-prone areas by reducing ignition risk from embers, flames, and radiant heat.
-
- Adoption of current building and fire codes can positively influence the City's Insurance Services Office (ISO) rating
 - Stronger ISO ratings may contribute to lower insurance costs for property owners throughout the community
 - **Reducing wildfire risk:** Requirements for fire-resistant roofing, siding, vents, and windows make structures less likely to ignite.
 - **Protecting lives:** More resilient buildings provide occupants with a better chance of surviving a wildfire.
 - **Reducing property losses:** Homes built to WUI standards are more likely to withstand ember attacks and radiant heat.
 - **Lowering firefighting costs:** Fire-resistant neighborhoods are easier and safer for firefighters to defend.
 - **Improving community resilience:** When fewer buildings are destroyed, communities recover more quickly after a wildfire.
 - **Potentially lowering insurance costs:** Some insurers offer discounts or view WUI-compliant properties as lower risk, although availability and savings vary by insurer and location.

Intent – Disrupt Built Environment Fire Pathways



Intent

- Adopt the 2024 International Wildland Urban Interface Code
- Amendments are based on local wildfire risk and heat transfer science
 1. Embers
 2. Radiant Heat
 3. Direct Flame
- Simplify Construction Requirements - eliminate uncertainty with fire hazard severity and defensible space calculations
- Move from ignition resistant to non-combustible construction
- Align with the Regional Plan, City of Flagstaff Zoning Code, and Forest Management Plan
- Align with Best Available Science - Insurance Institute for Business and Home Safety's Wildfire Prepared Home and Wildfire Prepared Neighborhood Standards

Impact

Total Project Impact: Requiring noncombustible materials typically increases total construction costs by approximately 1-2%.

Long-Term Value: Noncombustible materials generally last longer, require less maintenance, may reduce insurance premiums, and improve wildfire survivability.

- Noncombustible Hardie Board siding comes with 30-year full coverage warranty
- 1-hr fire rated LP SmartSide comes with a 5-year full coverage warranty

Avoided Costs: Research indicates every \$1 invested in wildfire-resistant construction may save approximately \$210 in avoided future wildfire losses.

IBHS Wildfire Prepared Home: Voluntary wildfire mitigation certification program is now available to Arizona residents. Recent evidence from New Mexico shows insurance premium savings of 15%-18% for those receiving Wildfire Prepared Home certificates.

Cost Impacts

Based on a typical 1,800 square foot single-family residence

Code Section	Impact
Exterior Wall Siding	Noncombustible siding estimated material and install cost increase: < \$2500 for 1,800 sq ft home.
Eaves / Soffits	Noncombustible boxed eaves and soffit material and install cost increase: < \$1,680 depending on material selection.
Covered Gutters	Gutter cover requirement estimated increase: ~\$500.
0–5 Foot Noncombustible Zone	Transition from grass/mulch/wood fencing to noncombustible ground cover/metal fencing estimated increase: ~\$2,500.
Windows	No major change. Current Code requires minimum 20-minute fire-resistance-rated glazing per NFPA 257 (IR2).
Roof Assemblies	No major change. Current code requires Class A roof assembly (IR2).
Doors	No major change. Current code requires noncombustible or solid-core wood doors (IR2).
Gutters	No major change. Current code requires noncombustible metal gutters (IR2).
Vents	No major Change: Current code requires 1/8" screening required (IR2).
Decks	Not a requirement for construction, although transition to noncombustible deck materials may increase costs depending on design.
Total Cost	< \$7,180

These numbers represent average cost estimates based on the best available data.

2024 International Fire Code

Chris Jack , Fire Marshal



Major Code Impacts: 2018–2024 IFC

- Lithium-ion battery and ESS requirements
- This is one of the biggest themes of the 2024 IFC
- Additive Manufacturing (3D Printing)
- Emergency Responder Communication Systems (ERRCS/ERCES)
- Upholstered Furniture & Mattress Storage
- Hazardous Materials / Control Areas Coordination
- Electric Vehicle Infrastructure Coordination
- Enhanced Hazardous Materials Provisions
- Carbon Monoxide Detection

IFC Amendments

- 2018 Amendments carried forward to 2024
 - Some removed – now base code
- New for 2024
- Section 323 - Electric Vehicles
 - Parking garage locations
 - Disconnect (location, signage)
- Section 510 – ERCES (emergency responder communication)
 - Building criteria to install conduit/junction boxes

Summary

Benefits of updating the Building and Fire Codes



Why update the Building and Fire Codes

Community Benefits: *Health, Safety, Affordability*

- Safer, more durable, buildings
- More efficient buildings with lower operating costs
- Improved preparedness and disaster resilience
- Positively influence the City's Insurance Services Office (ISO) rating
 - Stronger ISO ratings may contribute to lower insurance costs for property owners throughout the community

Flagstaff is not alone

Many AZ jurisdictions have already adopted the 2024 Suite of Codes

- Avondale
- Bisbee
- Buckeye
- Chandler
- Glendale
- Goodyear
- Maricopa
- Mesa
- Phoenix
- Prescott
- Sahuarita
- Surprise
- Tempe
- Tucson
- Coconino County
- Yavapai County
- Pima County
- Chino Valley

Estimated Building and Fire Code cost impacts

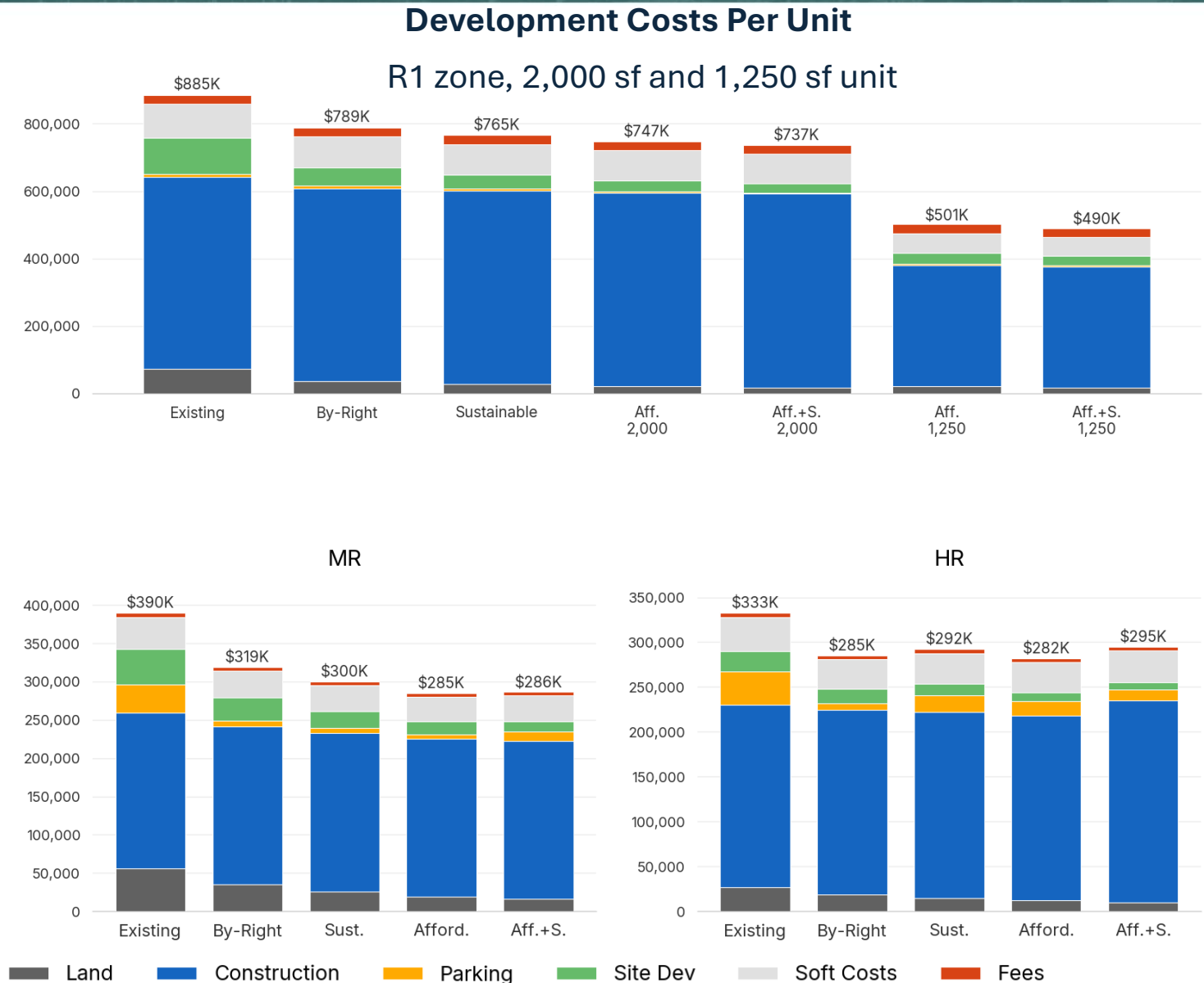
	Single family and duplexes		Multifamily
Code Section	Upfront Cost 2,000 sf	Upfront Cost 1,250 sf	Upfront Cost 800 sf
2024 IECC (Base Code + Appendices)	~\$8,200	~\$6,800	~\$4,000
2024 Wildland Urban Interface	~\$8,000	~\$5,000	~\$3,200
Radon Mitigation	~\$3,100*	~\$3,100*	~\$3,100*
Other Building and Fire Codes	Negligible	Negligible	Negligible
Total costs	~\$19,300	~\$14,900	~\$10,300

*Includes the cost of a radon fan, which may not be needed in all homes.

These numbers represent average cost estimates based on the best available data.

Potential cost savings from other development code changes

- The City's LASS/CAP project identified Zoning and Engineering code changes that could **reduce development costs per housing unit**
- These code changes have the potential to **offset any additional costs** associated with the 2024 Building and Fire codes



Building & Fire Code Adoption Timeline

September 8, 2026 - Council Work Session

- Presentation of proposed 2024 codes and local amendments
- Council discussion, feedback, and direction

September 15, 2026 - First Reading

- Proposed 2024 Suite of Construction Codes and local amendments presented for formal consideration

October 6, 2026 - Second Reading & Adoption

- Final consideration and adoption of ordinance

Mid-November 2026 - Anticipated Implementation

- New codes become effective following completion of the adoption process

Thank you.



“The 2024 Suite of Building and Fire Codes and Related Amendments to City Code, Title 4, Building Regulations, and Title 5, Fire Code”

**TITLE 4
BUILDING REGULATIONS**

CHAPTERS:

4-01 ADMINISTRATIVE ENACTMENTS

4-02 2024 INTERNATIONAL BUILDING CODE (IBC) AMENDMENTS

4-03 2024 INTERNATIONAL RESIDENTIAL CODE (IRC) AMENDMENTS

4-04 2024 INTERNATIONAL EXISTING BUILDING CODE (IEBC) AMENDMENTS

4-05 2024 INTERNATIONAL MECHANICAL CODE (IMC) AMENDMENTS

4-06 2024 INTERNATIONAL PLUMBING CODE (IPC) AMENDMENTS

4-07 2024 INTERNATIONAL FUEL GAS CODE (IFGC) AMENDMENTS

4-08 2024 INTERNATIONAL ENERGY CONSERVATION CODE (IECC) AMENDMENTS

4-10 2024 INTERNATIONAL SWIMMING POOL AND SPA CODE (ISPSC) AMENDMENTS

4-11 NATIONAL ELECTRICAL CODE (NEC), 2023 EDITION, AMENDMENTS

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 all of the adopted model codes referenced herein, as amended, the following terms shall have the meaning herein prescribed:

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

B. Wherever the term “Department of Building Safety” is used, it shall mean “Planning & Development Services Division.”

C. Wherever the term “Corporation Counsel” is used, it shall mean the Attorney for the City of Flagstaff.

D. Wherever the term “Administrative Authority” is used in conjunction with publicly provided utilities (natural gas, electricity, internet and broadband 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, maintenance of buildings and structures, including permits and penalties, those certain model codes known and referred to with particularity as:

2024 International Building Code (IBC)*

2024 International Residential Code (IRC)*

2024 International Existing Building Code (IEBC)*

2024 International Mechanical Code (IMC)*

2024 International Plumbing Code (IPC)*

2024 International Fuel Gas Code (IFGC)*

2024 International Energy Conservation Code (IECC)*

2024 International Swimming Pool and Spa Code (ISPSC)*

National Electrical Code (NEC), 2023 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) electronic copy of each model code listed above, and any amendments to said codes, are on file in the office of the City Clerk of the City of Flagstaff, and the same is made part hereof by this reference as if fully and completely herein set forth. The provisions of the aforestated 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 2024 International Codes, 2023 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 the model codes adopted in section 4-01-001-0002 above, as amended.

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.

CHAPTER 4-02

2024 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 2024 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 2024 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 2024 IBC 103.1, Creation of enforcement agency, by deleting and replacing with:

The City of Flagstaff Building Safety & Code Compliance Section is appointed as the enforcement agency for purposes of this code, and the official in charge thereof shall be known as the Building Official. The function of the Section shall be the implementation, administration, and enforcement of the provisions of this code.

Section 105 Permits

Amend 2024 IBC 105.1, Required, by adding:

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

Amend 2024 IBC 105.1 by adding subsections 105.1.3 through 105.1.7.1:

105.1.3 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.

105.1.4 Renewal application and fee. Annual permits expire on December 31. Application to renew an annual permit shall be filed with the Building Official by December 15, along with the renewal application fee set forth in the City Fee Schedule.

105.1.5 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 calendar days after notice of the denial.

105.1.6 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 calendar days before suspension or revocation. Appeal may be made to the Building and Fire Code Board of Appeals within 10 calendar days after notice of suspension or revocation. There is no fee refund if an annual permit is suspended or revoked.

105.1.7 Inspections. The Building Official, or their designee, may inspect all work and reject work or request corrections for any work in violation of this code.

105.1.7.1 Record exceptions. Work reports are not required for:

1. Installing machines, equipment, and processes related to production or testing.
2. Moving cases, counters, and partitions not over 5 feet 9 inches tall.

Amend 2024 IBC 105.4 Validity of permit, by adding:

A permit shall not be valid until a copy of the issued permit is signed and returned to the Building Safety & Code Compliance Section.

Amend 2024 IBC 105.5, Expiration, by deleting, replacing and adding sub sections 105.5.1 through 105.5.3:

Commercial Building Permits issued for new construction, remodels, additions, and alterations shall expire 24 months (730 days) from the date of issuance, unless extended as provided herein.

105.5.1: A permit shall become invalid if the work authorized by such permit is not commenced within 180 days from the date of issuance, or if the work is suspended or abandoned for a period of 180 days after commencement.

105.5.2: Only one extension not to exceed 365 days, may be granted by the Building Official upon written request and payment of a fee equal to one-half of the original building permit fee (excluding plan review fees).

Permits that exceed 1095 days (3 years) from the date of issuance, including extensions, and have not received final inspection approval shall expire. A new permit shall be required to complete the work, and all applicable fees shall be paid.

105.5.3: Over the counter permits (plumbing, mechanical, electrical, and re-roofing) shall expire if the work authorized by the permit is not commenced within 180 days from the date of issuance, or if the work is suspended or abandoned for a period of 180 days. Such permits shall not remain valid for more than 180 days from the date of issuance unless an extension is approved by the Building Official.

Section 107 Submittal Documents

Amend 2024 IBC 107.1, General, by adding:

Where required by Arizona Revised Statutes, construction documents for new construction, additions, alterations, or repairs to commercial occupancies within the City of Flagstaff shall be prepared by an Arizona-registered design professional (i.e. architect and engineers) 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 shall affix their seal to all construction documents. Construction documents not prepared by the Registered Design Professional of Record shall be identified as such; and the design professional's seal shall be affixed to all sheets in the construction document set to indicate that the project was prepared under the responsible control and coordination of the Registered Design Professional of Record.

Construction documents for retaining walls subject to surcharge loads from adjacent structural elements or other unbalanced loading that exceeds four (4) feet in height, shall be prepared by an Arizona Registered Design Professional.

Construction documents for electrical service equipment rated at 600 amperes or greater shall be prepared by an Arizona Registered Design Professional.

Section 109 Fees

Amend 2024 IBC 109.2, Schedule of permit fees, by adding:

The current schedule of permit fees is on file in the Office of Building Safety and available on the City of Flagstaff website (www.flagstaff.az.gov).

Amend 2024 IBC 109.4, Work commencing before permit issuance, by adding:

Any person who commences any work to construct, enlarge, alter, repair, move, demolish or change the occupancy of a building or structure, or to erect, install, enlarge, alter, repair, remove, convert or replace any 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 2024 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 are not on the job site at the time of inspection.
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. A \$94.00 re-inspection fee shall be paid through the Building Permit Portal before a re-inspection may be scheduled, after the inspector has issued notice that such fee will be assessed.

Amend 2024 IBC 109.6, Refunds, by adding:

A refund of up to 80 percent of the building permit fee, excluding plan review fees, may be authorized by the Building Official, provided that no work has commenced and no inspections have been performed. Plan review fees shall not be refundable.

The Building Official is authorized to determine the amount of any refund based on the extent of administrative processing and work completed. No refund shall be issued for any required deposit once administrative routing or plan review has commenced.

Section 111 Certificate of Occupancy

Amend 2024 IBC 111.3, Temporary occupancy, by deleting and replacing with:

The Building Official is authorized to issue a Temporary Certificate of Occupancy (TCO) for residential construction, including detached one- and two-family dwellings, where the structure is safe for occupancy and no substantial hazard to life, health, or safety exists.

A Temporary Certificate of Occupancy shall only be issued when:

1. All required life-safety systems are complete and operational, including but not limited to means of egress, smoke and carbon monoxide alarms, required guards and handrails, and all utilities.

2. Any remaining work is limited to non-life-safety items, including but not limited to exterior flatwork, landscaping, or unfinished accessory spaces such as basements or bonus rooms, which shall be documented as “not inspected.”
3. A bond or other financial assurance is provided when required by the Building Official for incomplete exterior improvements, including driveway approaches, where weather or other conditions prevent completion.
4. The Temporary Certificate of Occupancy shall be valid for a period not to exceed 60 days, unless extended by the Building Official for good cause.
5. Failure to complete the remaining work prior to expiration of the Temporary Certificate of Occupancy may result in revocation of occupancy approval and/or issuance of enforcement actions.

Occupancy of a structure prior to the issuance of a Certificate of Occupancy or Temporary Certificate of Occupancy is prohibited and may result in enforcement action, including issuance of a “No Occupancy” notice.

Section 113: Means of Appeals

Amend 2024 IBC 113.1, 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 2024 IBC Sections 113.2 through 113.4, by deleting in their entirety.

Section 1505 Fire Classification

Amend 2024 IBC 1505.4, Class C roof assemblies, by deleting in its entirety.

Amend 2024 IBC 1505.5, Nonclassified roofing, by deleting in its entirety.

Section 1506 Materials

Amend 2024 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.

Section 1507 Requirements for Roof Coverings

Amend 2024 IBC 1507.8, Wood shingles, by deleting in its entirety.

Amend 2024 IBC 1507.9, Wood shakes, by deleting in its entirety.

CHAPTER 16 STRUCTURAL DESIGN

Section 1607 Live Loads

Amend 2024 IBC Table 1607.1, Minimum Uniformly Distributed Live Loads and Minimum Concentrated Live Loads, by revising the following values:

Habitable attics and sleeping areas: 40 psf

Section 1608 Snow Loads

Amend 2024 IBC 1608.2, Ground snow loads, by deleting and replacing with:

The ground snow *loads* to be used in determining the design snow *loads* for roofs shall be determined in accordance with the reliability-targeted (strength based) ground snow load values in Chapter 7 of

ASCE/SEI 7. Site-specific case studies shall be determined in accordance with Chapter 7 of ASCE/SEI 7 and shall be *approved* by the *building official*.

Section 1612 Flood Loads

Amend 2024 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 by 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.

CHAPTER 4-03

2024 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 2024 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 R101: Scope and General Requirements

Amend 2024 IRC R101.2.1, Appendices, by adding:

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

APPENDIX BE — Radon Control Methods

APPENDIX BB — Tiny Houses

APPENDIX BI — Light Straw-Clay Construction

APPENDIX BJ — Strawbale Construction

APPENDIX NB — Solar-Ready Provisions

APPENDIX NE — Electric Vehicle Charging Infrastructure

APPENDIX NK — Electric-Ready Building Provisions

APPENDIX NL — Renewable Energy Infrastructure

IBC APPENDIX J — Grading (as amended)

Section R103 Code Compliance Agency

Amend 2024 IRC R103.1, Creation of agency, by deleting and replacing with:

The City of Flagstaff Building Safety & Code Compliance Section is appointed as the regulating office and the official in charge thereof shall be known as the Building Official.

Section R105 Permits

Amend 2024 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 70 pound per square foot (psf) ground snow load for site-built construction. Arizona Department of Housing 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 2024 IRC R105.5, Expiration, by deleting, replacing with new section R105.5, and adding subsections 105.5.1 through 105.5.5:

Section R105.5 Expiration.

Every residential building permit issued shall become invalid unless the work authorized by such permit is completed and a Certificate of Occupancy is issued within two (2) years from the date of permit issuance.

R105.5.1: A permit shall become invalid if the work authorized by such permit is not commenced within 180 days from the date of issuance, or if the work is suspended or abandoned for a period of 180 days after commencement.

R105.5.2: The Building Official is authorized to grant, upon written request submitted prior to permit expiration, one (1) extension of time not to exceed three hundred sixty-five (365) days, provided that:

1. The request includes documentation demonstrating justifiable cause, including but not limited to financial hardship, weather delays, or material delivery issues; and
2. Payment of a fee equal to one-half (½) of the original building permit fee, excluding plan review fees, is received.

R105.5.3: Under no circumstances shall a permit remain valid for more than three (3) years from the date of issuance.

105.5.4: Failure to obtain a Certificate of Occupancy within the maximum time allowed shall result in the permit expiring. In such cases, the Building Official may record a notice with the Coconino County Recorder's Office identifying the property as having incomplete construction or lacking a final inspection or Certificate of Occupancy.

105.5.5: 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 2024 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.

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.

Construction documents for retaining walls subject to surcharge loads from adjacent structural elements or other unbalanced loading that exceeds four (4) feet in height, shall be prepared by an Arizona Registered Design Professional.

Amend 2024 IRC R106.1 Submittal documents, by adding subsection R106.1.6, 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 the 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 2024 IRC R108.2, Schedule of permit fees, by adding:

The current schedule of permit fees is on file in the Office of Building Safety and available on the City of Flagstaff website (www.flagstaff.az.gov).

Amend 2024 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 are not on the job site at the time of inspection.
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. A \$94.00 re-inspection fee shall be paid through the Building Permit Portal before a re-inspection may be scheduled, after the inspector has issued notice that such fee will be assessed.

Amend 2024 IRC R108.5, Refunds, by adding:

A refund of up to 80 percent of the building permit fee, excluding plan review fees, may be authorized by the Building Official, provided that no work has commenced and no inspections have been performed. Plan review fees shall not be refundable.

The Building Official is authorized to determine the amount of any refund based on the extent of administrative processing and work completed. No refund shall be issued for any required deposit once administrative routing or plan review has commenced.

Amend 2024 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.

Amend 2024 IRC R109, Inspections, by adding the following subsections:

R109.1.1.1: Damp-proofing and waterproofing: Damp-proofing and waterproofing and foundation drainage as required in Chapter 4 shall be inspected prior to covering.

R109.1.1.2: Utility service provisions: Underground utility service provisions for water, building sewer, and electricity shall be inspected prior to covering.

R109.1.4.1: Roofing underlayment: Roofing underlayment shall be inspected prior to installation of roof covering materials as required in Chapter 9 of this code.

R109.1.4.2: Weather resistive barrier and window flashing: Weather resistive barrier and window flashing shall be inspected prior to installation of exterior wall coverings as required in Chapter 7 of this code.

R109.1.4.3: **Energy efficiency inspections:** Inspections shall be made to determine compliance with Chapter 13 and shall include, but not be limited to, inspections for: envelope insulation R- and U-values, fenestration U-value, duct system R-value, and HVAC and water-heating equipment efficiency.

Section R112 Means of Appeals

Amend 2024 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.

Amend 2024 IRC Sections 112.2 through 112.4, by deleting in their entirety.

CHAPTER 2 DEFINITIONS

Section R202 Definitions

Amend 2024 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, geothermal, biomass 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 2024 IRC Table R301.2, Climatic and Geographic Design Criteria, as follows:

Ground snow load: 70 psf
Wind design – Speed (mph): 115mph (Vult) Exposure B
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: Slight to moderate
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*
Mean annual temperature: 45 degrees F

Residential heating and cooling equipment sizing using Manual J is optional per 2024 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 2024 IRC R301.2.3, Snow Loads, by deleting and replacing with:

Ground snow loads shall be 70psf or shall be determined in accordance in with Section 1608 of the *International Building Code*. Wood-framed construction, cold-formed, steel-framed construction and

masonry and concrete construction, and *structural insulated panel* construction in regions with allowable stress design ground snow loads, $p_{g(asd)}$, 70 pounds per square foot (3.35 kPa) or less, shall be in accordance with Chapters 5, 6 and 8. *Buildings* in regions with allowable stress design ground snow loads, $p_{g(asd)}$, greater than 70 pounds per square foot (3.35 kPa) shall be designed in accordance with accepted engineering practice.

Amend 2024 IRC Table R301.5, Minimum Uniformly Distributed Live Loads, by revising the following values:

Residential - Habitable attics and sleeping areas: 40 psf

Section R302 Fire-Resistant Construction

Amend 2024 IRC R302.13, Fire protection of floors, by adding the following to Exceptions:

6. 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 R309 Automatic Fire Sprinkler Systems

Amend 2024 IRC R309.2, 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.

Section R317 Garages and Carports

Amend 2024 IRC R317.5, Fire sprinklers, by deleting in its entirety.

Section R325 Light, Ventilation and Heating

Amend 2024 IRC R325.3, 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.

CHAPTER 4 FOUNDATIONS

Section R401 General

Amend 2024 IRC R401.4.1, Geotechnical evaluation, by deleting and replacing with:

Construction in all new residential subdivisions require a geotechnical evaluation with foundation design 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 (psf) 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 2024 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 2024 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 2024 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 R318.7 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 2024 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(4).

Amend 2024 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 Table R507.6.

Amend 2024 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 2024 IRC R702.7, Vapor retarders, by deleting the following:

The requirement for Class I or Class II vapor retarders on the interior side of frame walls in Climate Zones 5, 6, 7, 8, and Marine 4. The use of vapor retarders shall be permitted but not required.

CHAPTER 8 ROOF-CEILING CONSTRUCTION

Section R802 Wood Roof Framing

Amend 2024 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 2024 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 2024 IRC R905.7, Wood shingles, by deleting in its entirety.

Amend 2024 IRC R905.8, Wood shakes, by deleting in its entirety.

CHAPTER 11 ENERGY EFFICIENCY

Section N1102 Building Thermal Envelope

Amend 2024 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 2024 IRC table N1102.1.3, Insulation Minimum R-Values and Fenestration Requirements by Components, column 5 and 4 Marine, row Wood-Framed Wall R-Value by revising as follows:

21, or 13+5ci, or 0+15 ci

Section N1103 (R403) Systems

Amend Section N1103.7 (R403.7), Equipment sizing and efficiency rating, by deleting and replacing with the following:

Heating and cooling equipment shall be sized in accordance with ACCA Manual S based on building loads calculated in accordance with ACCA Manual J or other approved heating and cooling calculation methodologies. Furnaces installed in new construction shall comply with the standards in Section N1103.7.2 and air source heat pumps installed in new construction shall comply with the standards in Section N1103.7.3. Replacement heating and cooling equipment in existing buildings shall have an efficiency rating equal to or greater than the minimum required by federal law for the geographic location where the equipment is installed. Replacement heating and cooling equipment is encouraged, but not required, to comply with the standards in Section N1103.7.2 and Section 1103.7.3.

Add Section N1103.7.2 (R403.7.2), Furnaces, to read as follows:

Furnaces installed in new construction shall be not less than 95 percent annual fuel utilization efficiency (AFUE) and shall be condensing-type furnaces.

Exception: Replacement furnaces in existing buildings are encouraged, but not required, to meet the provisions of this section.

Add Section N1103.7.3 (R403.7.3), Air Source Heat Pumps, to read as follows:

Air-source heat pumps installed in new construction shall be cold-climate heat pumps and shall comply with all of the following:

1. Have a coefficient of performance (COP) at 5°F of not less than 1.75 at maximum capacity operation, or a heating capacity at 5°F of not less than 70 percent of the maximum rated capacity.
2. Ducted systems shall have a heating seasonal performance factor (HSPF2) of not less than 7.7 and a seasonal energy efficiency ratio (SEER2) of not less than 14.3.
3. Non-ducted systems shall have an HSPF2 of not less than 8.5 and a SEER2 of not less than 15.0.

Exception: Replacement air-source heat pumps in existing buildings are encouraged, but not required, to meet the provisions of this section.

Section N1104 Electric Power, Lighting and Renewable Energy Systems

Amend 2024 IRC N1104, Electrical Power, Lighting, and Renewable Energy Systems, by deleting Sections N1104.2 through N1104.3.1 in their entirety.

CHAPTER 20 BOILERS AND WATER HEATERS

Section M2005 Water Heaters

Amend 2024 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

Amend 2024 IRC, section G2415.3, Prohibited locations, by adding: Piping shall not be installed to a structure that is not attached to a permanent foundation.

Section G2415.12 Minimum Burial Depth

Amend 2024 G2415.12, Minimum burial depth, by deleting and replacing with:

Underground piping systems shall be installed a minimum depth of 18 inches below grade, except as provided for in Section G2415.12.1.

Section G2445 Unvented Room Heaters

Amend 2024 IRC Section G2445, Unvented Room Heaters, by deleting in its entirety.

CHAPTER 26 GENERAL PLUMBING REQUIREMENTS

Section P2601 General

Amend 2024 IRC Section P2601, General, by adding subsection P2601.4, Prohibited Locations, as follows:

P2601.4: Prohibited locations.

Water and waste plumbing systems shall not be installed to a structure that is not attached to a permanent foundation.

Section P2602 Individual Water Supply and Sewage Disposal

Amend 2024 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 2024 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 2024 IRC Table P2903.2, Maximum Flow Rates and Consumption for Plumbing Fixtures and Fixture Fittings, by revising and adding as follows:

<u>PLUMBING FIXTURE OR FIXTURE FITTING</u>	<u>MAXIMUM FLOW RATE OR QUANTITY</u>
Lavatory faucet	1.5 gpm at 60 psi and WaterSense labeled
Showerhead ^a	1.8 gpm at 80 psi and WaterSense labeled
Sink faucet	2.2 gpm at 60 psi and WaterSense labeled
Water closet	1.28 gallons per flushing cycle and WaterSense labeled and has a Maximum Performance (MaP) rating score of at least 600 grams per flush. 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.
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CHAPTER 31 VENTS

Section P3103 Vent Terminals

Amend 2024 IRC P3103.1.1, Roof extension, 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 2024 IRC E3901.4.2, Island and peninsular countertops and work surfaces, by deleting and replacing with:

At least one receptacle outlet shall be installed at each island countertop space with a long dimension of 24 inches (610 mm) or greater and a short dimension of 12 inches (305 mm) or greater. [210.52(C)(2)]. Not less than one receptacle outlet shall be installed at each peninsular countertop long dimension space having a long dimension of 24 inches (610 mm) or greater and a short dimension of 12 inches (305 mm) or greater. A peninsular countertop is measured from the connected perpendicular wall. [210.52(C)(3)].

Amend 2024 IRC E3902.5, Basement receptacles, by deleting in its entirety.

APPENDIX BE – RADON CONTROL METHODS

Section BE101 General

Amend 2024 IRC Section BE101.1, General, by deleting (including Figure BE101.1 and Table BE101.1) and replacing with the following:

Radon-resistant construction in accordance with this appendix shall be required for all new construction.

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

Section NB103.6 (RB103.6)

Amend 2024 IRC NB103.6 (RB103.6), Capped roof penetration sleeve, by deleting in its entirety.

APPENDIX NE – ELECTRIC VEHICLE CHARGING INFRASTRUCTURE

Section NE101(RE101)

Amend 2024 IRC Section NE101.1 (RE101.1), Definitions, by deleting and replacing the definition of “Electric Vehicle Supply Equipment (EVSE)” with the following:

Electric Vehicle Supply Equipment (EVSE).

Equipment for plug-in power transfer, including ungrounded, grounded and equipment grounding conductors; electric vehicle connectors; attached plugs; any personal protection system; and all other fittings, devices, power outlets or apparatus installed specifically for the purpose of transferring energy between the premises wiring and the *electric vehicle*. There are three types of EVSE, categorized by voltage and charging speed: Level 1, Level 2, and Direct Current Fast Charging (DCFC).

Amend 2024 IRC Section NE101.2.1 (RE101.2.1), Quantity, by deleting and replacing with the following:

New one- and two-family dwellings and townhouses with a designated attached or detached garage or other on-site private parking provided adjacent to the *dwelling unit* shall be provided with one *EV ready space* or *Level 2 EVSE space* per *dwelling unit*. Two-family dwellings without a designated attached or detached garage shall be permitted to provide one *EV ready space* or *Level 2 EVSE space* for use by both dwelling units. It shall be located in a common-use area and be accessible to all occupants.

Exception:

1. New detached garages or carports where electricity is not provided shall not be required to provide EV charging infrastructure.

Amend 2024 IRC Section NE101.2.3 (RE101.2.3), EV Ready Spaces, by deleting and replacing with the following:

Each branch circuit serving an EV ready space shall comply with all of the following:

1. Be a 208/240-volt, 50-ampere branch circuit.
2. Terminate in a NEMA 14-50R receptacle outlet located within 6 feet (1828 mm) of each EV ready space it serves and marked “For electric vehicle supply equipment (EVSE).”
3. Be designated on the panelboard or other electrical distribution equipment directory as “For electric vehicle supply equipment (EVSE).”
4. Be installed in compliance with the currently adopted International Residential Code and National Electrical Code.

Amend 2024 IRC Section NE101.2.4 (RE101.2.4), EVSE Spaces, by deleting and replacing with the following:

An installed *Level 2 EVSE* with multiple output connections shall be permitted to serve multiple *Level 2 EVSE spaces*. Each *Level 2 EVSE* serving either a single *Level 2 EVSE space* or multiple *Level 2 EVSE spaces* shall comply with all of the following:

1. Be served by an electrical distribution system in accordance with Section NE101.2.5.
2. Have a nameplate charging capacity of not less than 8.3 kVA (or 50A at 208/240V) per *Level 2 EVSE space* served. Where a *Level 2 EVSE* serves three or more *Level 2 EVSE spaces* and is controlled by an energy management system in accordance with Section RE101.2.5, the nameplate charging capacity shall be not less than 2.1 kVA per *Level 2 EVSE space* served.
3. Be located within 6 feet (1828 mm) of each *Level 2 EVSE space* it serves.
4. Be installed in accordance with NFPA 70 and be *listed* and *labeled* in accordance with UL 2202 or UL 2594.

Amend 2024 IRC Section NE101.2.5 (RE101.2.5), Electrical Distribution System Capacity, by deleting and replacing with the following:

The branch circuits and electrical distribution system serving each *EV capable space*, *EV ready space* and *Level 2 EVSE space* used to comply with Section NE101.2.1 (RE101.2.1) shall comply with all of the following:

1. Sized for a calculated *EV* charging load of not less than 8.3 kVA per *Level 2 EVSE*, *EV ready* or *EV capable space*. Where a circuit is shared or managed, it shall be in accordance with NFPA 70.
2. The capacity of the electrical distribution system and each branch circuit serving multiple *Level 2 EVSE spaces*, *EV ready spaces* or *EV capable spaces* designed to be controlled by an energy management system in accordance with NFPA 70 shall be sized for a calculated *EV* charging load of not less than 2.1 kVA per space. Where an energy management system is used to

control *EV* charging loads for the purposes of this section, it shall not be configured to turn off electrical power to *Level 2 EVSE* or *EV ready spaces* used to comply with Section NE101.2.1 (RE101.2.1).

Amend 2024 IRC Section NE101.2: (RE101.2), Electric vehicle power transfer infrastructure, by adding subsection NE101.2.6 (RE101.2.6), Construction Documents, as follows:

NE101.2.6: (RE101.2.6) Construction Documents.

Construction documents shall designate all *EVSE spaces*, *EV ready spaces*, and *EV capable spaces*, and indicate the locations of raceway and/or conduit and termination points serving them. The circuits or spaces reserved for *EVSE spaces*, *EV ready spaces*, and *EV capable spaces* shall be clearly identified in the panel or subpanel directory. The raceway and/or conduit for *EV capable spaces* and *EV ready spaces* shall be clearly identified at both the panel or subpanel, and the termination point at the parking space.

APPENDIX NK –

ELECTRIC READY RESIDENTIAL PROVISIONS

Section NK101 (RK101)

Amend 2024 IRC Section NK101.1 (RK101.1), Electric Readiness, by adding:

Exception:

1. New one- and two-family dwellings and townhomes can request an exception to the requirements in this appendix from the Building Official if electrical load calculations indicate a 400-amp electric service panel is required to meet the minimum requirements of the 2024 International Residential Code. Exceptions will be granted at the discretion of the Building Official.

Amend 2024 IRC Section NK101.1.1 (RK101.1.1), Cooking appliances, by deleting and replacing with the following:

A dedicated branch circuit outlet with a rating not less than 240 volts and not less than 50 amperes shall be installed and terminate within 3 feet (914 mm) of conventional cooking tops, conventional ovens or cooking appliances combining both.

Exception: Cooking appliances not installed in an individual *dwelling unit*.

CHAPTER 4-04

2024 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 2024 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 2024 IEBC 105.1, Required, by adding:

Refer to the 2024 Amendments to Flagstaff City Code, Title 4, Building Regulations to the 2024 International Building Code (IBC) and 2024 International Residential Code (IRC) for building permit requirements.

Amend 2024 IEBC 105.5, Expiration, by deleting and replacing with:

Refer to the 2024 Amendments to Flagstaff City Code, Title 4, Building Regulations to the 2024 International Building Code (IBC) and 2024 International Residential Code (IRC) for the duration of building permits.

Section 112 Means of Appeals

Amend 2024 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.

Amend 2024 IEBC Sections 112.2 through 112.4, by deleting in their entirety.

CHAPTER 4 REPAIRS

Section 408 Plumbing

Amend 2024 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 1.28 gallons (4.84 liters) per flushing cycle or lower.

Dual-flush water closets: The effective flush volume for dual-flush toilets shall not exceed 1.28 gallons (4.84 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 2024 IEBC 1201.2, Report, by adding subsection 1201.2.1, Heritage Preservation Commission:

1201.2.1: Heritage Preservation Commission. Any exterior changes to a structure over 50 years old at the time of application shall be reviewed by the Heritage Preservation Officer and Current Planning Section, Planning & Development Services Division, prior to issuing a building permit. The project may be referred to the City's Inter-Division Staff (IDS) committee and/or the Heritage Preservation Commission for review. Heritage Preservation review will be conducted pursuant to Flagstaff Zoning Code Division 10-30.30: Heritage Preservation.

CHAPTER 4-05

2024 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 2024 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 108 Fees

Amend 2024 IMC 108.6, Refunds, by deleting and replacing with:

Refunds shall be in accordance with 2024 IBC 109.6, as adopted and amended by the City of Flagstaff.

Section 112 Means of Appeal

Amend 2024 IMC 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.

Amend 2024 IMC Sections 112.2 through 113.1, by deleting in their entirety.

Section 114 Violations

Amend 2024 IMC 114.4, Violation penalties, by deleting and replacing with:

Violation penalties shall be in accordance with Flagstaff City Code Section 4-01-001-004, Violation and Penalties.

Amend 2024 IMC 115, Stop work orders, by deleting and replacing with:

Stop work orders shall be in accordance with 2024 IBC Section 115, as adopted and amended by the City of Flagstaff.

CHAPTER 3 GENERAL REGULATIONS

Section 304 Installation

Amend 2024 IMC 304.2, Conflicts, by deleting and replacing with:

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

CHAPTER 4 VENTILATION

Amend 2024 IMC Chapter 4, Ventilation, by adding Section 408, Cannabis Related Occupancies, as follows:

408.1 General.

Any building used to cultivate, produce, infuse, or dispense cannabis shall be designed such that there shall be no emission of dust, fumes, vapors, or odors into the environment from the premises. A ventilation system shall be designed to prevent the distribution of odors to other occupied parts of the building or adjacent properties. Design of the odor control system shall be based on accepted engineering practices. All equipment and filter media shall be listed and labeled for the application. Exhaust systems used in odor control systems shall meet the requirements of Section 501. 408.1.1 Exhaust outlets. The termination point for exhaust outlets shall be in 65 accordance with Section 501.3. Exhaust from cultivation and production facilities shall be in accordance with Section 501.3.1(2) and for dispensaries in accordance with Section 501.3.1(3).

CHAPTER 5 EXHAUST SYSTEMS

Section 511, Sub-slab Soil Exhaust Systems

Amend 2024 IMC 511.1, General, by deleting and replacing with:

Sub-slab soil exhaust systems shall be required for all new construction within the jurisdiction where buildings are constructed in contact with the ground. Where a sub-slab soil exhaust system is provided, the system shall comply with the requirements of this section.

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

Section 903 Factory-Built Fireplaces

Amend 2024 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.

CHAPTER 10 BOILERS, WATER HEATERS AND PRESSURE VESSELS

Section 1002 Water Heaters

Amend 2024 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.

CHAPTER 4-06 2024 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 2024 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 108 Fees

Amend 2024 IPC 108.2, Schedule of permit fees, by deleting and replacing with:

The fees for all plumbing work shall be in accordance with 2024 IBC 109.2, as adopted and amended by the City of Flagstaff.

Amend 2024 IPC 108.6, Fee refunds, by deleting and replacing with:

Refunds shall be in accordance with 2024 IBC 109.6, as adopted and amended by the City of Flagstaff.

Section 112 Means of Appeal

Amend 2024 IPC 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.

Amend 2024 IPC Sections 112.2 through 113.1, by deleting in their entirety.

Section 114 Violations

Amend 2024 IPC 114.4, Violation penalties, by deleting and replacing with:

Violation penalties shall be in accordance with Flagstaff City Code Section 4-01-001-004, Violation and Penalties.

CHAPTER 3 GENERAL REGULATIONS

Section 301 General

Amend 2024 IPC 301.6, Prohibited locations, by adding:

Water and waste plumbing systems shall not be installed to a structure that is not attached to a permanent foundation.

Amend 2024 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 2024 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 2024 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 2024 IPC 312.1, Required tests, by replacing the fourth sentence with:

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

Amend 2024 IPC 312.3, Drainage and vent air test, by deleting the first sentence.

Amend 2024 IPC 312.5, Drainage and vent final test, by deleting in its entirety.

Amend 2024 IPC 312.7, Gravity sewer test, by deleting in its entirety.

CHAPTER 6 WATER SUPPLY AND DISTRIBUTION

Section 604 Design of Building Water Distribution System

Amend 2024 IPC Table 604.4, Maximum flow rates and consumption for plumbing fixtures and fixture fittings, by revising the following values:

<u>PLUMBING FIXTURE OR FIXTURE FITTING</u>	<u>MAXIMUM FLOW RATE OR QUANTITY^b</u>
Lavatory faucet, private	1.5 gpm at 60 psi and WaterSense labeled
Lavatory faucet, public (metering)	0.25 gallon per metering cycle and WaterSense labeled
Lavatory faucet, public (other than metering)	0.5 gpm at 60 psi and WaterSense labeled
Showerhead ^{a, c}	1.8 gpm at 80 psi and WaterSense labeled
Sink faucet	2.2 gpm at 60 psi and WaterSense labeled
Urinal	0.125 gallons (1 pint) per flushing cycle and WaterSense labeled
Water closet	1.28 gallons per flushing cycle and WaterSense labeled and has a Maximum Performance (MaP) rating score of at least 600 grams per flush. Dual-flush water closets: The effective flush volume for dual-flush toilets shall not exceed 1.28 gallons (4.84 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.

For SI: 1 gallon = 3.785 L, 1 gallon per minute = 3.785 L/m, 1 pound per square inch = 6.895 kPa.

- A hand-held shower spray is a shower head.
- Consumption tolerances shall be determined from referenced standards.
- Shower heads shall comply with all requirements for high-efficiency showerheads in [ASME A112.18.1-2020/CSA B125.1](#).

CHAPTER 7 SANITARY DRAINAGE

Section 703 Building Sewer

Amend 2024 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 2024 IPC 903.1.1, Roof extension unprotected, as follows:

Replace “[NUMBER]” with “twelve (12)” and replace “(mm)” with “(304.8 mm)”.

CHAPTER 4-07 2024 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 2024 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 APPLICATION

Section 108 Fees

Amend 2024 IFGC 108.6, Refunds, by deleting and replacing with:

Refunds shall be in accordance with 2024 IBC 109.6, as adopted and amended by the City of Flagstaff.

Section 112 Means of Appeals

Amend 2024 IFGC 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.

Amend 2024 IFGC Sections 112.2 through 112.4, by deleting in their entirety.

Section 113 Violations

Amend 2024 IFGC 113.4, Violation penalties, by deleting and replacing with:

Violation penalties shall be in accordance with Flagstaff City Code Section 4-01-001-004, Violation and Penalties.

CHAPTER 3 GENERAL REGULATIONS

Section 303 Appliance Location

Amend 2024 IFGC 303.3, Prohibited locations, by deleting numbers 3 and 4.

CHAPTER 4 GAS PIPING INSTALLATIONS

Section 403 Piping Materials

Amend 2024 IFGC 403.3.3, 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.

Section 404 Piping System Installation

Amend 2024 IFGC 404.3, Prohibited locations, by adding:

Piping shall not be installed to a structure that is not attached to a permanent foundation.

Amend 2024 IFGC 404.12, Minimum burial depth, by deleting and replacing with:

Underground piping systems shall be installed a minimum depth of 18 inches below grade, except as provided for in Section 404.12.1.

CHAPTER 6 SPECIFIC APPLIANCES

Section 621 Unvented Room Heaters

Amend 2024 IFGC Section 621, Unvented Room Heaters, by deleting in its entirety.

CHAPTER 4-08

2024 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 2024 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 [CE] 1 SCOPE AND ADMINISTRATION

Section C101 Scope and General Requirements

Section C101.2 Scope

Amend 2024 IECC Section C101.2, Scope, by adding the following:

Group R-2 buildings, where defined as residential buildings by Section C202, shall be permitted to comply with the Residential Provisions of this code, regardless of height. Such election shall be indicated on the construction documents at the time of submittal.

Section C101.2.1 Appendices

Amend 2024 IECC Section C101.2.1, Appendices, by adding:

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

APPENDIX CB – Solar-Ready Zone – Commercial

APPENDIX CG – Electric Vehicle Charging Infrastructure

APPENDIX CH – Electric – Ready Commercial Building Provisions

APPENDIX CI – Demand Responsive Controls

Section C101.4 Compliance

Amend 2024 IECC Section C101.4, Compliance, by adding the following:

Residential buildings shall comply with the Residential Provisions of this code. Commercial buildings shall comply with the Commercial Provisions of this code. Group R-2 buildings, where defined as residential buildings by Section C202, shall be permitted to comply with the Residential Provisions of this code, regardless of height. Where such election is made, all applicable Residential Provisions shall be followed in their entirety. Once selected, the compliance path shall not be changed without approval of the Building Official.

Section C109 Means of Appeals

Amend 2024 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 2024 IECC Sections C109.2 through 109.4, by deleting in their entirety.

CHAPTER [CE] 2 DEFINITIONS

Section C202 General Definitions

Amend 2024 IECC Section C202, General definitions, by deleting and replacing the definition of “Residential Building” with the following:

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. Group R-2 buildings, regardless of height, shall

be permitted to comply with the Residential Provisions of this code, provided such designation is identified on the construction documents. Where a building includes accessory common uses and/or commercial spaces, those portions of the building shall comply with the applicable commercial provisions of the International Energy Conservation Code.

CHAPTER [CE] 4 COMMERCIAL ENERGY EFFICIENCY

Amend 2024 IECC table C402.1.3, Opaque Building Thermal Envelope Insulation Component Minimum Requirements, R-Value Method, Column 5 and Marine 4, sub-columns All other and Group R, row Wood framed and other by revising as follows:

R-0+R-16ci, or R-13+R-7.5ci, or R20+R3.8, or R-21

Section C405.12 Automatic Receptacle Control

Amend 2024 IECC C405.12 & 405.12.1, Automatic Receptacle Control, by deleting in their entirety.

Section C405.13 Energy Monitoring

Amend 2024 IECC Section C405.13, Energy Monitoring, by adding the following:

Compliance with the provisions of this section is optional.

Section C405.15 Renewable Energy Systems

Amend 2024 IECC Section C405.15, Renewable Energy Systems, as follows:

Replace “shall” with “may” and add the following second sentence: Compliance with the provisions of Sections C405.15.1 through C405.15.4 is optional.

APPENDIX CG – ELECTRIC VEHICLE CHARGING INFRASTRUCTURE

Section CG101.1 Definitions

Amend 2024 IECC Section CG101.1, Definitions, by deleting and replacing the definition of “Electric Vehicle Supply Equipment (EVSE)” with the following:

Equipment for plug-in power transfer, including ungrounded, grounded and equipment grounding conductors; electric vehicle connectors; attached plugs; any personal protection system; and all other fittings, devices, power outlets or apparatus installed specifically for the purpose of transferring energy between the premises wiring and the electric vehicle. There are three types of EVSE, categorized by voltage and charging speed: Level 1, Level 2, and Direct Current Fast Charging (DCFC).

Section CG101.2.1 Quantity

Amend 2024 IECC Section CG101.2.1, Quantity, by deleting and replacing with the following:

The number of required *Level 2 electric vehicle supply equipment (EVSE)* spaces, *EV capable spaces* and *EV ready spaces* shall be determined in accordance with this section and Table CG101.2.1 based on the total number of *automobile parking spaces* and shall be rounded up to the nearest whole number. For Group R-2 buildings, the Table CG101.2.1 requirements shall be based on the total number of *dwelling units* or the total number of *automobile parking spaces*, whichever is less.

1. Where more than one parking facility is provided on a *building site*, the number of required *automobile parking spaces* required to have EV power transfer infrastructure shall be calculated separately for each parking facility.
2. Where one shared parking facility serves multiple building occupancies, the required number of spaces shall be determined proportionally based on the floor area of each building occupancy.
3. Installed *Level 2 EVSE spaces* that exceed the minimum requirements of this section may be used to meet the minimum requirements for *EV ready spaces* and/or *EV capable spaces* on a one-to-one ratio.

4. Installed *EV ready spaces* that exceed the minimum requirements of this section may be used to meet the minimum requirements for *EV capable spaces* on a one-to-one ratio.
5. Where the number of *EV ready spaces* allocated for R-2 occupancies is equal to the number of *dwelling units* or to the number of *automobile parking spaces* allocated to R-2 occupancies, whichever is less, requirements for *Level 2 EVSE spaces* for R-2 occupancies shall not apply.
6. Requirements for a Group S-2 parking garage shall be determined by the occupancies served by that parking garage. Where new automobile spaces do not serve specific occupancies, the values for Group S-2 parking garage in Table CG101.2.1 shall be used.
7. For buildings that install *DCFC EVSE* spaces, each *DCFC EVSE* space shall be permitted to substitute up to 10 required *EV capable, EV ready, or Level 2 EVSE* spaces.
8. Group R-2 occupancies shall be permitted to install three *Level 1 EVSE* spaces for every required *Level 2 EVSE space* or *EV ready space* but cannot exceed 50 percent of the required Level 2 EVSE spaces or EV ready spaces.
9. All attached garages with direct connection to a *dwelling unit* will be required to have one *EV ready or Level 2 EVSE space*.
10. When the calculation of required *EV capable, EV ready, and/or Level 2 EVSE spaces* results in a decimal number, a decimal of 0.5 or more shall be adjusted to the next higher whole number, and a decimal of less than 0.5 shall be adjusted to the next lower whole number.

Exception: Parking facilities serving occupancies other than R2 with fewer than 15 *automobile parking spaces*.

Amend 2024 IECC table CG101.2.1, Required EV Power Transfer Infrastructure, by deleting and replacing with the following:

TABLE CG101.2.1 REQUIRED EV POWER TRANSFER INFRASTRUCTURE

OCCUPANCY	LEVEL 2 EVSE SPACES	EV READY SPACES	EV CAPABLE SPACES
Group A	5%	0%	10%
Group B	5%	5%	10%
Group E	5%	5%	10%
Group F	2%	0%	5%
Group H	1%	0%	0%
Group I	5%	0%	10%
Group M	5%	0%	10%
Group R-1	5%	10%	15%
Group R-2	5%	10%	15%

Groups R-3 and R-4	0%	2%	5%
Group S exclusive of parking garages	1%	0%	0%
Group S-2 parking garages	15%	0%	30%

CG101.2.2 EV Capable Spaces.

Amend 2024 IECC Section CG101.2.2, EV Capable Spaces, by deleting and replacing with the following:

Each *EV capable space* used to meet the requirements of Section CG101.2.1 shall comply with all of the following:

1. A continuous raceway or cable assembly shall be installed between an enclosure or outlet located within 3 feet (914 mm) of the *EV capable space* and electrical distribution equipment.
2. Installed raceway or cable assembly shall be sized and rated to supply a minimum circuit capacity in accordance with Section CG101.2.5.
3. The electrical distribution equipment to which the raceway or cable assembly connects shall have dedicated overcurrent protection device space and electrical capacity to supply a calculated load in accordance with Section CG101.2.5.
4. The enclosure or outlet and the electrical distribution equipment directory shall be marked: "For electric vehicle supply equipment (EVSE)."

CG101.2.3 EV Ready Spaces.

Amend 2024 IECC Section CG101.2.3, EV Ready Spaces, by deleting and replacing with the following:

Each branch circuit serving *EV ready spaces* used to meet the requirements of Section CG101.2.1 shall comply with all of the following:

1. Be a 208/240-volt, 50-ampere branch circuit.
2. Terminate in a NEMA 14-50R receptacle outlet located within 3 feet (914 mm) of each EV ready space it serves.
3. Have a minimum system and circuit capacity in accordance with Section CG101.2.5.
4. The electrical distribution equipment directory shall designate the branch circuit as "For electric vehicle supply equipment (EVSE)" and the outlet or enclosure shall be marked "For electric vehicle supply equipment (EVSE)."
5. Be installed in compliance with the currently adopted National Electrical Code.

CG101.2.4: EVSE Spaces

Amend 2024 IECC Section CG101.2.4, EVSE Spaces, by deleting and replacing with the following:

CG101.2.4.1: Level 2 EVSE spaces.

An installed *Level 2 EVSE* with multiple output connections shall be permitted to serve multiple *Level 2 EVSE spaces*. Each *Level 2 EVSE* installed to meet the requirements of Section CG101.2.1, serving either a single *Level 2 EVSE* or multiple *Level 2 EVSE*, shall comply with all of the following:

1. Have a minimum system and circuit capacity in accordance with Section CG101.2.5.
2. Have a nameplate rating not less than 8.3 kW.
3. Be located within 3 feet (914 mm) of each *Level 2 EVSE space* it serves.
4. Be installed in accordance with Section CG101.2.6.

CG101.2.4.2: Level 1 EVSE Spaces.

Each *Level 1 EVSE space* shall comply with all the following:

1. The receptacle shall be located within 3 feet (914 mm) of each *Level 1 EVSE space* it serves.
2. Have a minimum circuit capacity of 1.8 kVA (15 amperes 120 volts).
3. The electrical panel, electrical distribution equipment directory, and all receptacles or enclosures shall be marked “Level 1 Electric vehicle supply equipment (EVSE).”

CG101.2: Electric Vehicle Power Infrastructure.

Amend 2024 IECC Section CG101.2, Electric Vehicle Power Infrastructure, as follows:

Change “CG101.2.6” to “CG101.2.7”.

Amend 2024 IECC Section CG101.2, Electric Vehicle Power Infrastructure, by adding Section CG101.2.7, Construction Documents, to read as follows:

Construction documents shall designate all *EVSE spaces*, *EV ready spaces*, and *EV capable spaces*, and indicate the locations of raceway and/or conduit and termination points serving them. The circuits or spaces reserved for *EVSE spaces*, *EV ready spaces*, and *EV capable spaces* shall be clearly identified in the panel or subpanel directory. The raceway and/or conduit for *EV ready spaces* and *EV capable spaces* shall be clearly identified at both the panel or subpanel, and the termination point at the parking space.

APPENDIX CI: DEMAND RESPONSIVE CONTROLS

Section CI103.1 Demand Responsive Lighting Controls

Amend 2024 IECC Section CI103, Demand Responsive Lighting Controls, by deleting in its entirety.

RESIDENTIAL PROVISIONS

CHAPTER [RE] 1 SCOPE AND ADMINISTRATION

Section R101 Scope and General Requirements

Amend 2024 IECC Section R101.2.1, Appendices, by adding.

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

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

APPENDIX RE – ELECTRIC VEHICLE CHARGING INFRASTRUCTURE

APPENDIX RK – ELECTRIC READY RESIDENTIAL BUILDING PROVISIONS

APPENDIX RL – RENEWABLE ENERGY INFRASTRUCTURE

Section R109 Means of Appeals

Amend 2024 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 2024 IECC Sections R109.2 through 109.4, by deleting in their entirety.

CHAPTER [RE] 2 DEFINITIONS

Section R202 General Definitions

Amend 2024 IECC R202, General definitions, by replacing the definition of “Residential Building” with the following:

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. Group R-2 buildings, regardless of height, shall be permitted to comply with the Residential Provisions of this code, provided such designation is identified on the construction documents. Where a building includes accessory common uses and/or commercial spaces, those portions of the building shall comply with the applicable commercial provisions of the International Energy Conservation Code.

CHAPTER [RE] 4 RESIDENTIAL ENERGY EFFICIENCY

Section R402 Building Thermal Envelope

Amend 2024 IECC Table R402.1.2, Maximum Assembly U-Factors and Fenestration Requirements, by adding the following:

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

Amend 2024 IECC Table R402.1.3, Insulation Minimum R-Values and Fenestration Requirements by Component, column 5 and 4 Marine, row Wood-Framed Wall R-Value by revising as follows:

21, or 13+5ci, or 0+15 ci (R15 high density shall be permissible in existing 2x4 framed walls)

Section R403 Systems

Amend 2024 IECC Section R403.7, Equipment sizing and efficiency rating, by deleting and replacing with the following:

Heating and cooling equipment shall be sized in accordance with ACCA Manual S based on building loads calculated in accordance with ACCA Manual J or other approved heating and cooling calculation methodologies. Furnaces installed in new construction shall comply with the standards in Section N1103.7.2 and air source heat pumps installed in new construction shall comply with the standards in Section N1103.7.3. Replacement heating and cooling equipment in existing buildings shall have an efficiency rating equal to or greater than the minimum required by federal law for the geographic location where the equipment is installed. Replacement heating and cooling equipment is encouraged, but not required, to comply with the standards in Section R403.7.2 and R403.7.3.

Amend 2024 IECC Section R403.7, Equipment sizing and efficiency rating, by adding Section R403.7.2, Furnaces, as follows:

R403.7.2: Furnaces.

Furnaces installed in new construction shall be not less than 95 percent annual fuel utilization efficiency (AFUE) and shall be condensing-type furnaces.

Exception: Replacement furnaces in existing buildings are encouraged, but not required, to meet the provisions of this section.

Amend 2024 IECC Section R403.7, Equipment sizing and efficiency rating, by adding Section R403.7.3, Air Source Heat Pumps, as follows:

R403.7.3: Air source heat pumps.

Air-source heat pumps installed in new construction shall be cold-climate heat pumps and shall comply with all of the following:

1. Have a coefficient of performance (COP) at 5°F of not less than 1.75 at maximum capacity operation, or a heating capacity at 5°F of not less than 70 percent of the maximum rated capacity.
2. Ducted systems shall have a heating seasonal performance factor (HSPF2) of not less than 7.7 and a seasonal energy efficiency ratio (SEER2) of not less than 14.3.
3. Non-ducted systems shall have an HSPF2 of not less than 8.5 and a SEER2 of not less than 15.0.

Exception: Replacement air-source heat pumps in existing buildings are encouraged, but not required, to meet the provisions of this section.

Section R404 Electric Power, Lighting and Renewable Energy Systems

Amend 2024 IRC R404, Electrical Power, Lighting, and Renewable Energy Systems, by deleting Sections R404.2 through R404.3.1 in their entirety.

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

Amend 2024 IECC RB103.6, Capped roof penetration sleeve, by deleting in its entirety.

APPENDIX RE – ELECTRIC VEHICLE CHARGING INFRASTRUCTURE

Section RE101.1

Amend 2024 IECC Section RE101.1, Definitions, by deleting and replacing the definition of “Electric Vehicle Supply Equipment (EVSE)” with the following:

Electric Vehicle Supply Equipment (EVSE). Equipment for plug-in power transfer, including ungrounded, grounded and equipment grounding conductors; electric vehicle connectors; attached plugs; any personal protection system; and all other fittings, devices, power outlets or apparatus installed specifically for the purpose of transferring energy between the premises wiring and the *electric vehicle*. There are three types of EVSE, categorized by voltage and charging speed: Level 1, Level 2, and Direct Current Fast Charging (DCFC).

Section RE101.2

Amend 2024 IECC Section RE101.2, Electric vehicle power infrastructure, as follows:

Change “RE101.2.5” to “RE101.2.6”.

Amend 2024 IECC Section RE101.2, Electric vehicle power transfer infrastructure, by adding:

Exceptions:

New detached garages or carports where electricity is not provided shall not be required to provide EV charging infrastructure.

Amend 2024 IECC Section RE101.2.1, Quantity, by deleting and replacing with the following sections RE101.2.1.1 - RE101.2.1.4.3:

Section RE101.2.1.1 One- and Two- Family Dwellings and Townhouses

New one- and two-family dwellings and townhouses with a designated attached or detached garage or other on-site private parking provided adjacent to the *dwelling unit* shall be provided with one *EV ready space* or *Level 2 EVSE space* per *dwelling unit*. Two-family dwellings without a designated attached or detached garage shall be permitted to provide one *EV ready space* or *Level 2 EVSE space* for use by both dwelling units. It shall be located in a common-use area and be accessible to all occupants.

Section RE101.2.1.2 Other Residential Occupancies

R-2 occupancies, allocated parking for R-2 occupancies in mixed-use *buildings*, R-3 occupancies (excluding one- and two-family dwellings and townhomes), and R-4 occupancies shall meet the requirements in Table RE101.2.1.2(1) for *EV capable*, *EV ready*, or *EVSE* spaces. At least one *EV capable*, *EV ready* or *EVSE space* shall be located in a common-use area and be available for use by all occupants.

When the calculation of required *EV capable*, *EV ready*, and *EVSE spaces* results in a decimal number, a decimal of 0.5 or more shall be adjusted to the next higher whole number, and a decimal of less than 0.5 shall be adjusted to the next lower whole number.

Table RE101.2.1.2(1) EV Infrastructure Requirements for Other Residential Occupancies

Building Type	Level 2 EVSE spaces	EV capable or EV ready spaces
Group R-2 occupancies three stories or less in height above grade plane with 15 or fewer parking spaces	20% of spaces shall be either <i>Level 2 EVSE</i> , <i>EV ready</i> , or <i>EV capable</i> (not fewer than 1 space).	
Group R-2 occupancies less than three stories in height above grade plane with more than 15 parking spaces	5%	15%
Group R-2 occupancies taller than three stories in height above grade plane	5%	25%
Group R-3 and R-4 occupancies three stories or less in height above grade plane with more than 15 parking spaces	0	7%

Exceptions:

1. R-3 and R-4 occupancies where fewer than 15 parking spaces are provided.
2. Where the local electric distribution entity certifies in writing that it is not able to provide 100 percent of the necessary distribution capacity within 2 years after the estimated certificate of occupancy date, the required EV charging infrastructure shall be reduced based on the available existing electric distribution capacity.
3. Where substantiation is approved that meeting the requirements of Section RE101.2.5 will alter the local utility infrastructure design requirements on the utility side of the meter so as to increase the utility side cost to the builder or developer by more than \$450 per dwelling unit.

RE101.2.1.3 Attached garages. All attached garages with direct connection to a dwelling unit shall be required to have one EV ready space or EVSE space.

RE101.2.1.4 Parking Space Type Substitutions. Group R-2, R-3, and R-4 occupancies shall be permitted to substitute EV parking spaces required in Table 101.2.1.2(1) according to sections RE101.2.1.4.1 – RE101.2.1.4.3.

RE101.2.1.4.1 DC Fast Charging. For Group R-2, R-3, R-4 buildings that install *DCFC EVSE* spaces, each *DCFC EVSE* space shall be permitted to substitute up to 10 required *EV capable*, *EV ready*, or *Level 2 EVSE spaces* in Table RE101.2.1.2(1).

RE101.2.1.4.2 Level 1 EV Charging. For Group R-2 buildings that install *Level 1 EVSE spaces* in accordance with section RE101.2.5, three *Level 1 EVSE spaces* shall be permitted to substitute every *Level 2 EVSE space*, but cannot exceed 50 percent of the required *Level 2 EVSE spaces* in Table RE101.2.1.2(1).

RE101.2.1.4.3 Excess Level 2 EVSE Spaces. *Level 2 EVSE spaces* installed in accordance with Section RE101.2.4 that exceed the minimum requirements in Table RE101.2.1.2(1) are permitted to be used to meet the minimum requirements for *EV capable* or *EV ready spaces* on a one-to-one ratio.

Amend 2024 IECC Section RE101.2.3, EV Ready Spaces, by deleting and replacing with the following:

Each branch circuit serving an EV ready space shall comply with all of the following:

1. Be a 208/240-volt, 50-ampere branch circuit.
2. Terminate in a NEMA 14-50R receptacle outlet located within 6 feet (1828 mm) of each EV ready space it serves and marked “For electric vehicle supply equipment (EVSE).”
3. Be designated on the panelboard or other electrical distribution equipment directory as “For electric vehicle supply equipment (EVSE).”
4. Installation shall comply with the currently adopted National Electrical Code.

Amend 2024 IECC Section RE101.2.4, EVSE Spaces, by deleting and replacing with the following:

RE101.2.4.1 Level 2 EVSE Spaces

An installed *Level 2 EVSE* with multiple output connections shall be permitted to serve multiple *Level 2 EVSE spaces*. Each *Level 2 EVSE* serving either a single *Level 2 EVSE space* or multiple *Level 2 EVSE spaces* shall comply with all of the following:

1. Be served by an electrical distribution system in accordance with Section RE101.2.5.
2. Have a nameplate charging capacity of not less than 8.3 kVA (or 50A at 208/240V) per *Level 2 EVSE space* served. Where a *Level 2 EVSE* serves three or more *Level 2 EVSE spaces* and is controlled by an energy management system in accordance with Section RE101.2.5, the nameplate charging capacity shall be not less than 2.1 kVA per *Level 2 EVSE space* served.
3. Be located within 6 feet (1828 mm) of each *Level 2 EVSE space* it serves.
4. Be installed in accordance with NFPA 70 and be *listed* and *labeled* in accordance with UL 2202 or UL 2594.

RE101.2.4.2 Level 1 EVSE Spaces.

Each *Level 1 EVSE space* shall comply with all the following:

1. The receptacle shall be located within 6 feet (1828 mm) of each *Level 1 EVSE space* it serves.
2. Have a minimum circuit capacity of 1.8 kVA (15A 120V).

3. The electrical panel, electrical distribution equipment directory, and all receptacles or enclosures shall be marked “Level 1 Electric vehicle supply equipment (EVSE).”

Amend 2024 IECC Section RE101.2.5, Electrical Distribution System Capacity, by deleting and replacing with the following:

The branch circuits and electrical distribution system serving each *EV capable space*, *EV ready space* and *Level 2 EVSE space* used to comply with Section RE101.2.1 shall comply with one of the following:

1. Sized for a calculated *EV* charging load of not less than 8.3 kVA per *Level 2 EVSE*, *EV ready* or *EV capable space*. Where a circuit is shared or managed, it shall be in accordance with NFPA 70.
2. The capacity of the electrical distribution system and each branch circuit serving multiple *Level 2 EVSE spaces*, *EV ready spaces* or *EV capable spaces* designed to be controlled by an energy management system in accordance with NFPA 70 shall be sized for a calculated *EV* charging load of not less than 2.1 kVA per space. Where an energy management system is used to control *EV* charging loads for the purposes of this section, it shall not be configured to turn off electrical power to *Level 2 EVSE* or *EV ready spaces* used to comply with Section RE101.2.1.

Amend 2024 IECC Section RE101.2, Electric vehicle power transfer infrastructure, by adding Section RE101.2.6, Construction Documents, as follows:

RE101.2.6: Construction documents.

Construction documents shall designate all *EVSE spaces*, *EV ready spaces*, and *EV capable spaces*, and indicate the locations of raceway and/or conduit and termination points serving them. The circuits or spaces reserved for *EVSE spaces*, *EV ready spaces*, and *EV capable spaces* shall be clearly identified in the panel or subpanel directory. The raceway and/or conduit for *EV ready spaces* and *EV capable spaces* shall be clearly identified at both the panel or subpanel, and the termination point at the parking space.

APPENDIX RK – ELECTRIC READY RESIDENTIAL CONSTRUCTION

Section RK101

Amend 2024 IECC Section RK101.1, Electric readiness, to add:

Exception:

1. New one- and two-family dwellings and townhomes can request an exception to the requirements in this appendix from the Building Official if electrical load calculations indicate a 400-amp electric service panel is required to meet the minimum requirements of the 2024 International Residential Code. Exceptions will be granted at the discretion of the Building Official.

Amend 2024 IECC Section RK101.1.1, Cooking appliances, by deleting and replacing with the following:

A dedicated branch circuit outlet with a rating not less than 240 volts and not less than 50 amperes shall be installed and terminate within 3 feet (914 mm) of conventional cooking tops, conventional ovens or cooking appliances combining both.

Exception: Cooking appliances not installed in an individual *dwelling unit*.

APPENDIX RL – RENEWABLE ENERGY INFRASTRUCTURE

Section RL101

Amend 2024 IECC Section RL101.1, Renewable energy infrastructure, by deleting and replacing with the following:

The *building* shall comply with the requirements of Section RL101.1.2.

Solar-ready construction in accordance with this appendix shall be required for all new Group R occupancies, excluding one- and two-family dwellings and townhouses regulated under the 2024 International Residential Code.

Amend 2024 IECC Section RL101.1.1, One- and two-family dwellings and townhouses, by deleting entirely

CHAPTER 4-10

2024 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 2024 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 112 Means of Appeals

Amend 2024 ISPSC 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.

Amend 2024 ISPSC Sections 112.2 through 112.4, by deleting in their entirety.

Section 113 Violations

Amend 2024 IMC 113.4, Violation penalties, by deleting and replacing with:

Violation penalties shall be in accordance with Flagstaff City Code Section 4-01-001-004, Violation and Penalties.

CHAPTER 2 DEFINITIONS

Section 202 Definitions

Amend 2024 ISPSC Section 202, Definitions, by deleting and replacing the definition of “Residential Swimming Pool (Residential Pool)” with the following:

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 2024 ISPSC 305.2.1, Barrier height and clearances, by revising subsection 1 as follows:

Replace “48 inches” with “60 inches” and “1219 mm” with “1524 mm”.

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), 2023 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 General Requirements for Electrical Installations

Part I General

Amend 2023 NEC Article 110.2, Approval, by deleting and replacing with:

All electrical conductors, components, material, and equipment shall be listed and labeled.

Amend 2023 NEC Article 110.5, Conductors, by deleting and replacing with:

Conductors used to carry current shall be copper. Aluminum or copper-clad aluminum conductors shall be permitted only for feeders and service-entrance conductors, where installed in accordance with this Code. Aluminum and copper-clad aluminum conductors shall not be used for branch-circuit wiring.

Where conductor material is not specifically identified, the conductor sizes and requirements of this Code shall be based on copper conductors.

Amend 2023 NEC Article 110.7, Wiring Integrity, by deleting and replacing with:

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 Not Over 1000 Volts ac, 1500 Volts dc, Nominal

Part I General

Amend 2023 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:

<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

Amend 2023 NEC Article 210.8, Ground-Fault Circuit-Interrupter Protection for Personnel, by deleting subsection 210.8(A)(5) in its entirety.

Article 210.52

Amend 2023 NEC Article 210.52(C)(2), Island and peninsular countertops and work surfaces, by deleting and replacing with the following:

At least one receptacle outlet shall be installed at each island countertop space with a long dimension of 24 inches (610 mm) or greater and a short dimension of 12 inches (305 mm) or greater. Not less than one receptacle outlet shall be installed at each peninsular countertop long dimension space having a long dimension of 24 inches (610 mm) or greater and a short dimension of 12 inches (305 mm) or greater. A peninsular countertop is measured from the connected perpendicular wall. Receptacle outlets shall be installed in accordance with 210.52(C)(3).

Article 250 Grounding and Bonding

Part II System Grounding

Amend 2023 NEC Article 250.30, Grounding Separately Derived Alternating-Current Systems, (A) Grounded Systems, (4) Grounding Electrode, by adding:

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.

City of Flagstaff – Building Safety & Code Compliance

2024 IBC Significant Changes & Cost Impacts (Condensed Summary)

Most 2024 IBC changes focus on life safety, structural performance, and new building technologies. Cost impacts are generally moderate to high and depend on building type, height, and occupancy.

Key Change	Impact / Cost
Energy Storage Systems (ESS)	New requirements for battery systems; can significantly increase cost depending on size (\$1,000s–\$10,000s).
Mass Timber / Tall Wood Buildings	Expanded allowances; may reduce structural cost but increase fire protection requirements.
Egress & Stairway Updates	Refined requirements; may impact layout and construction cost.
Fire Protection Systems	Expanded sprinkler/alarm requirements; moderate to high cost depending on building size.
Structural Load Updates	Updated wind, snow, and seismic provisions; may increase structural design cost.
Facade & Exterior Wall Requirements	Improved weather protection and fire resistance; moderate cost increase depending on system.
Elevator & Accessibility Updates	Enhanced accessibility provisions; can increase cost for multi-story buildings.
EV Charging & Electrical Coordination	Coordination with NEC/IECC; may require infrastructure planning and added cost.
Occupancy Classification Changes	Refined classifications; may trigger different construction requirements and costs.

WHEN COSTS ARE TRIGGERED (IBC)
• Building Type → Commercial vs residential significantly affects requirements • Building Height & Size → Taller/larger buildings trigger more fire and structural requirements • Occupancy Type → Higher hazard uses increase life safety requirements • Structural System → Material choice (steel, concrete, wood) impacts cost • Fire Protection Level → Sprinklers, alarms, and ratings drive cost • Technology Integration → ESS, EV, and new systems increase cost

Final Takeaways: IBC cost impacts are moderate to high and heavily project-specific. Costs are driven by building size, occupancy, structural system, and fire protection requirements.

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City of Flagstaff – Building Safety & Code Compliance

2024 IRC Significant Changes & Cost Impacts (Condensed Summary)

Most 2024 IRC changes are optional or situational. Overall cost impacts are generally neutral to slightly cost-reducing depending on project conditions.

Key Change	Impact / Cost
Floor Framing at Guards (R502.11)	Additional framing required; ~\$0–\$459 cost.
Vapor Retarder Under Slabs (R506.3.3)	Reduced to 6-mil; ~\$472–\$957 savings.
Stucco WRB Changes (R703.7.3)	Modified requirements; up to ~\$1,200 savings.
Building Official Authority (R104)	Expanded authority; ~\$74–\$597 cost when triggered.
Framing Splice Engineering (R502/R802)	Engineering required; ~\$804–\$891 when triggered.
Soil Classification (R401.4.1)	Allows USDA data; ~\$946 savings.
Deck Ledger Flashing (R507)	Improved moisture control; ~\$28–\$36 cost.
Exterior Stair Landing Exception	Reduced landing size; ~\$798 savings.
Masonry Veneer Support	Simplified flashing; up to ~\$328 savings.
HVAC Exhaust & Return Air Changes	Flexibility; savings up to ~\$262 or costs up to ~\$1,843.
BIPV Solar Marking	Safety labeling; ~\$190–\$246 cost.

WHEN COSTS ARE TRIGGERED (IRC)
• Structural Conditions → Non-prescriptive framing or splices require engineering • Site Conditions → Soil conditions or slopes may trigger design requirements • Project Scope → Decks, exterior work, and additions introduce additional requirements • Mechanical System Design → HVAC layout or return air strategies may increase cost • Material Choices → Exterior finishes (stucco, veneer) can shift cost up or down • Technology Integration → Solar or specialty systems add incremental cost

Final Takeaways: Most changes are optional or condition-based. Overall impact is neutral to slightly cost-reducing. Costs are driven by structural engineering and HVAC changes; savings come from simplified materials and reduced requirements.

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2024 IEBC Significant Changes & Cost Impacts (Condensed Summary)

Most 2024 IEBC changes provide flexibility for existing buildings while improving safety and accessibility. Cost impacts vary widely depending on scope of work, occupancy changes, and level of alteration.

Key Change	Impact / Cost
Expanded Compliance Methods	Clarifies prescriptive, work area, and performance options; generally neutral cost with added flexibility.
Change of Occupancy Requirements	More defined triggers for upgrades; can increase costs significantly depending on hazard category change.
Accessibility Upgrades	Expanded requirements during alterations; may add \$1,000s depending on scope and building condition.
Structural Evaluation Triggers	Updated thresholds for structural review; engineering costs ~\$800–\$3,000 when triggered.
Energy Code Coordination	More alignment with IECC; may require insulation, lighting, or system upgrades during remodels.
Fire & Life Safety Improvements	Enhanced requirements for alarms, separations, and egress; cost varies widely by building condition.
Historic Building Flexibility	Maintains alternative compliance paths; can significantly reduce upgrade costs for historic structures.
Work Area Method Clarifications	Improves predictability of required upgrades; may reduce unexpected costs during permitting.
Mechanical, Plumbing, Electrical Coordination	Better alignment with IMC/IPC/NEC; may trigger system upgrades when alterations occur.
Partial vs Full Building Upgrades	Clarifies when entire building must comply; major cost driver if triggered by large project scope.

WHEN COSTS ARE TRIGGERED (IEBC)

- Change of Occupancy → Higher hazard categories may trigger full upgrades
- Scope of Work → Larger alterations (Level 2/3) require more compliance
- Area of Work → Upgrades typically limited to the work area unless thresholds are exceeded
- Accessibility Thresholds → Improvements may be required up to 20% of project cost
- Structural Modifications → May require engineering analysis and upgrades
- Building Systems → MEP work can trigger system compliance updates

Final Takeaways: IEBC changes are highly project-dependent. Costs are primarily driven by occupancy changes, accessibility upgrades, and structural evaluations. The code also provides flexibility that can help manage or reduce costs in many renovation scenarios.

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City of Flagstaff – Building Safety & Code Compliance

2024 IECC Significant Changes & Cost Impacts (Condensed Summary)

Includes Flagstaff-specific considerations (Climate Zone 5). Costs vary based on system type, design, and compliance path.

Key Change	Impact / Cost (Including CZ5 Focus)
Overall Cost Increase vs 2018 IECC	Gas: ~\$4,100–\$4,200; Electric: ~\$7,200+ in CZ5.
R408 Credit System	Flexible compliance options; can offset costs with lower-cost credits.
Continuous Wall Insulation (CZ 4-5)	Major cost driver; ~\$5,000+.
Air Sealing (Tighter Homes)	Stricter ACH; ~\$900–\$1,200.
High-Efficiency HVAC / Heat Pumps	Cold-climate systems ~\$6,000+.
Mechanical Ventilation (HRV/ERV)	Required in CZ5; ~\$2,200.
Fenestration (Windows)	Lower U-factor increases cost.
Ducts in Conditioned Space	Energy savings but may increase cost.
Renewable Energy / Solar Ready	Optional high-cost option (~\$10,000+).

WHEN COSTS ARE TRIGGERED (IECC)

- Climate Zone → CZ5 drives higher insulation, HVAC, and ventilation costs
- System Type → All-electric designs typically cost more than gas systems
- R408 Credit Selection → Costs vary widely depending on chosen compliance path
- HVAC Equipment → High-efficiency or cold-climate heat pumps increase cost
- Envelope Design → Continuous insulation and tighter envelopes increase cost
- Optional Measures → Solar, advanced systems significantly increase cost if selected

Flagstaff (CZ5) Takeaways: Costs are driven primarily by insulation, HVAC, and ventilation. The R408 system provides flexibility, but colder climate requirements still result in higher costs.

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2024 IFGC Significant Changes & Cost Impacts (Condensed Summary)

Most 2024 IFGC changes focus on system safety, material standards, and emerging fuel technologies. Cost impacts are generally low to moderate and tied to system type, materials, and installation methods.

Key Change	Impact / Cost
CSST Bonding & Grounding Updates	Additional bonding requirements; ~\$100–\$500 depending on system.
Hydrogen Blending Considerations	Future-focused provisions; minimal immediate cost but may impact material selection.
Appliance Installation & Clearance Updates	Refined spacing and placement; may affect layout and installation cost.
Venting System Clarifications	Updated vent sizing and routing; minor to moderate cost depending on system complexity.
Gas Piping Materials & Standards	Expanded material options; may increase or decrease cost depending on selection.
Outdoor Appliance Installations	Improved safety requirements; minor cost increase for exterior systems.
Pressure Regulation & Testing	Enhanced testing requirements; minor labor and inspection cost.

WHEN COSTS ARE TRIGGERED (IFGC)
• System Type → Larger or more complex gas systems increase cost • Material Selection → CSST, steel, or specialty materials vary in cost • Appliance Type → High-efficiency or specialty appliances increase cost • Venting Design → Complex vent routing increases labor and material cost • Fuel Type Changes → Emerging fuels (hydrogen blends) may impact system design

Final Takeaways: IFGC cost impacts are generally low to moderate and project-specific. Costs are driven by system design, material choices, and appliance selection.

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2024 IMC Significant Changes & Cost Impacts (Condensed Summary)

Most 2024 IMC changes focus on improved ventilation, system efficiency, and equipment safety. Cost impacts are generally moderate and are typically tied to system design and equipment selection.

Key Change	Impact / Cost
Ventilation Requirement Updates	Increased outdoor air requirements; may increase duct sizing and equipment capacity (~\$500–\$2,000).
Commercial Kitchen Exhaust Clarifications	More defined hood/exhaust requirements; can increase cost for restaurant TI projects (\$1,000s).
Refrigerant Safety Updates	Alignment with newer refrigerants; may impact equipment selection and cost.
Duct Construction & Fire/Smoke Dampers	Improved safety requirements; added dampers and protection may increase cost (~\$500–\$2,500).
Equipment Access & Service Clearance	Expanded access requirements; may impact layout and roof/mechanical room design.
Outdoor Air & Exhaust Placement	Clearer separation requirements; may increase duct routing complexity and cost.
System Efficiency Alignment (IECC Coordination)	Higher efficiency equipment often required; cost increases ~\$1,000–\$5,000 depending on system.
Mechanical System Controls	More advanced controls required in some cases; minor to moderate cost impact.

WHEN COSTS ARE TRIGGERED (IMC)

- System Type → Larger or more complex HVAC systems increase costs significantly
- Building Use → Commercial kitchens and high-occupancy spaces drive higher ventilation costs
- Equipment Selection → High-efficiency or specialty systems increase upfront costs
- Duct Routing & Layout → Complex layouts increase labor and material costs
- Code Coordination → IECC and other codes may require upgraded systems

Final Takeaways: IMC cost impacts are generally moderate and project-specific. Costs are primarily driven by ventilation requirements, equipment efficiency, and system complexity.

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2024 IPC Significant Changes & Cost Impacts (Condensed Summary)

Most 2024 IPC changes focus on water efficiency, system protection, and updated materials. Cost impacts are generally low to moderate and tied to fixture selection, system design, and backflow protection.

Key Change	Impact / Cost
Water Efficiency / Fixture Updates	Updated fixture performance standards; minimal to moderate cost depending on product selection.
Backflow Prevention Requirements	Expanded protection requirements; may add devices/testing (~\$200–\$1,000+).
Water Heater & Expansion Control	Thermal expansion and installation updates; may require additional components (~\$150–\$500).
Drainage & Venting Flexibility	More flexible venting methods; may reduce labor/material costs in some designs.
Pipe Materials & Standards	Updated approved materials; cost varies depending on material selection and availability.
Storm Drainage Requirements	Improved sizing and design; may increase cost for larger buildings or roof systems.
Hot Water System Efficiency	Improved distribution efficiency; may add recirculation or insulation costs (~\$200–\$1,000).
Trap & Cleanout Accessibility	Improved access requirements; may affect layout and installation complexity.

WHEN COSTS ARE TRIGGERED (IPC)
• Fixture Selection → Higher efficiency fixtures may increase upfront cost • Building Type → Commercial projects require more backflow and system protection • System Design → Complex layouts increase labor and material costs • Water Heater Type → High-efficiency or recirculation systems increase cost • Code Coordination → IECC and other codes may require additional upgrades

Final Takeaways: IPC cost impacts are generally low to moderate and project-specific. Costs are driven by backflow protection, water heater systems, and overall plumbing system design.

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City of Flagstaff – Building Safety & Code Compliance

2023 NEC Significant Changes & Cost Impacts (2017 → 2023)

The 2023 NEC introduces expanded electrical safety requirements and new technology provisions. Cost impacts are generally moderate and tied to protection devices, EV infrastructure, and system upgrades.

Key Change	Impact / Cost
Expanded GFCI Protection	Applies to more circuits (125–250V); ~\$100–\$500 increase per panel.
Expanded AFCI Protection	Additional arc-fault breakers required; ~\$300–\$1,000 increase.
Surge Protection (SPDs)	Now required for dwelling units; ~\$200–\$600 cost.
EV Charging Infrastructure	Dedicated circuits and capacity; ~\$500–\$2,500 depending on installation.
Energy Storage Systems (ESS)	New safety requirements; significant cost when installed (\$1,000s).
Outdoor Emergency Disconnects	New requirement for dwellings; ~\$100–\$300 cost.
Load Calculation Updates	May increase service size; moderate cost depending on project.
Solar / Renewable Integration	Expanded PV provisions; cost varies widely depending on system.
Working Space & Clearance	May affect layout; minor cost impacts.

<i>WHEN COSTS ARE TRIGGERED (NEC)</i>
• Panel Upgrades → Additional breakers and capacity increase cost • Technology Integration → EV, solar, and battery systems drive cost • Circuit Expansion → More GFCI/AFCI protection increases cost • Building Type → Larger/commercial systems significantly increase cost • Electrical Design → Load calculations and service size impact cost

Final Takeaways: NEC cost impacts are generally moderate and driven by safety upgrades and emerging technologies. Costs are primarily tied to panel capacity, protection devices, and optional system installations.

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City of Flagstaff – Building Safety & Code Compliance

2024 ISPSC Significant Changes & Cost Impacts (Condensed Summary)

Most 2024 ISPSC changes focus on safety, energy efficiency, and water quality. Cost impacts are generally low to moderate and primarily affect new pool and spa installations.

Key Change	Impact / Cost
Barrier & Safety Requirements	Updated fencing, alarms, and safety features; ~\$500–\$2,000 depending on configuration.
Energy Efficiency (Pumps & Heaters)	Higher efficiency equipment required; ~\$500–\$3,000 depending on system.
Water Quality & Circulation	Improved filtration and turnover requirements; moderate equipment cost increases.
Entrapment Protection	Enhanced drain and suction safety; minimal to moderate cost depending on system.
Electrical Bonding Coordination	Alignment with NEC; may increase coordination and installation cost.
Deck & Surface Requirements	Slip resistance and drainage updates; may increase material and installation cost.
Spa & Hot Tub Safety	Additional safety and control requirements; minor to moderate cost increase.

WHEN COSTS ARE TRIGGERED (ISPSC)

- New Construction → Full compliance required for new pools/spas
- Safety Features → Barriers, alarms, and covers increase cost
- Equipment Selection → High-efficiency pumps/heaters increase cost
- Pool Type → Commercial pools have significantly higher requirements
- Site Design → Decking, drainage, and layout affect cost

Final Takeaways: ISPSC cost impacts are generally low to moderate and concentrated in new construction. Costs are primarily driven by safety features, equipment efficiency, and overall pool design.

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City of Flagstaff

Building Safety & Code Compliance

2024 Building Code Update: What's Changing (IBC 2018 → IBC 2024)

Why This Matters

The City of Flagstaff is preparing to adopt the 2024 International Building Code (IBC) to ensure buildings are safer, more resilient, and aligned with modern construction practices.

Key Change	Impact
Mass Timber Expansion	Allows taller wood buildings; faster construction; possible cost savings but requires specialized design.
Updated Structural Loads	More accurate snow, wind, seismic design; increases safety but may raise construction costs.
Extreme Weather Provisions	Improves resilience; may add cost for certain building types.
Occupancy & Roof Use Changes	More rooftop amenities; may require additional structural and egress design.
Fire & Life Safety Updates	Expanded detection systems; increases safety with moderate cost impact.
Temporary Structures	Improved construction safety requirements; minor cost increases.

What This Means

Contractors & Developers: Updated requirements and new design opportunities.

Property Owners: Safer buildings with potential cost changes.

Community: Increased resilience and sustainability.

Contact Information

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City of Flagstaff

Building Safety & Code Compliance

2024 Existing Building Code Update: Key Changes (IEBC 2018 → 2024)

Why This Matters

The City of Flagstaff is preparing to adopt the 2024 International Existing Building Code (IEBC) to improve safety while providing flexibility for renovations, alterations, and reuse of existing buildings.

Key Change	Impact
Expanded Compliance Options	Clarifies prescriptive, work area, and performance methods; provides more flexibility in how existing buildings comply.
Change of Occupancy Updates	Refined requirements when buildings change use; may require additional life safety upgrades depending on risk level.
Energy Efficiency Coordination	Better alignment with energy codes; may trigger upgrades to insulation, lighting, or systems during renovations.
Accessibility Improvements	Expanded requirements for accessibility upgrades during alterations; improves access but may increase project scope.
Structural Evaluation Triggers	Updated thresholds for when structural evaluation is required; improves safety but may add engineering costs.
Historic Buildings Flexibility	Maintains flexibility for historic structures; allows preservation while meeting safety goals.

What This Means

Contractors & Designers: Greater flexibility in compliance methods, but potential for additional upgrades.

Property Owners: Easier reuse of existing buildings with improved safety requirements.

Community: Supports adaptive reuse while maintaining safety and accessibility.

Contact Information

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City of Flagstaff – Building Safety & Code Compliance

2024 Residential Code Update: Key Changes (IRC 2018 → 2024)

Why This Matters: The City of Flagstaff is preparing to adopt the 2024 IRC to improve safety, energy efficiency, and housing flexibility.

Key Change	Impact
Energy Efficiency Updates (IECC Alignment)	Improved insulation, air sealing, and system efficiency requirements; increases upfront construction cost but lowers long-term utility expenses.
Electric Vehicle (EV) Readiness	New provisions for EV charging infrastructure; may require dedicated circuits and panel capacity planning.
Deck Construction & Guards	Updated deck ledger, guard, and connection requirements improve safety; may increase material and inspection requirements.
Wall Bracing & Lateral Design	Refined bracing provisions improve structural performance in wind/seismic conditions; may affect framing layouts.
Habitable Attics & Loft Spaces	Clarifications for habitable attics and egress improve usability; may require stairs or emergency escape openings.
Solar-Ready Provisions	Encourages future solar installation; may require conduit pathways or roof planning.
Plumbing & Mechanical Coordination	Better alignment with IPC/IMC; may affect routing and equipment placement.
Fire Protection & Safety	Clarifications for smoke alarms and fire separation improve life safety; minimal cost impact.
Window Opening Control Devices	Expanded safety provisions reduce fall risks; may require additional hardware.
Accessory Dwelling Units (ADUs)	Improved clarity and flexibility; supports housing but requires coordination.
Frost Protection & Foundations	Important for Flagstaff climate; may affect footing depth and insulation.
Air Sealing & Moisture Control	Enhanced requirements reduce air leakage and moisture; improves durability and comfort.

What This Means: Builders/designers will see updates to energy, structural, and future-ready systems. Homeowners benefit from safer, more efficient homes with possible upfront cost increases. The community benefits from resilience and sustainability.

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City of Flagstaff

Building Safety & Code Compliance

2024 Fuel Gas Code Update: Key Changes (IFGC 2018 -> 2024)

Why This Matters

The City of Flagstaff is preparing to adopt the 2024 International Fuel Gas Code (IFGC) to improve safety, align with modern fuel gas system practices, and ensure proper installation and operation of gas piping and appliances.

Key Change	Impact
Corrugated Stainless Steel Tubing (CSST) Bonding Updates	Clarified bonding and grounding requirements improve protection from lightning-related damage; may require additional bonding connections during installation.
Hydrogen Blending Provisions	Introduces considerations for hydrogen blending in fuel gas systems; supports future energy transitions but may affect material compatibility and system design.
Appliance Installation & Clearances	Refined clearance and installation requirements improve safety and accessibility; may impact equipment layout in mechanical rooms and exterior installations.
Venting System Clarifications	Updated venting provisions for appliances improve performance and safety; may require revised vent sizing or routing.
Gas Piping Materials & Standards	Updates to approved materials and installation standards reflect modern products; may influence material selection and contractor practices.
Outdoor Appliance Installations	Clarifications for outdoor appliances and gas systems improve safety in exterior environments; may impact design of outdoor kitchens and heating features.

What This Means

Contractors & Designers: Updated requirements for gas piping, appliance installation, and system safety.

Property Owners: Safer and more reliable gas systems with potential minor installation cost impacts.

Community: Improved safety and readiness for evolving energy systems.

Contact Information

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City of Flagstaff

Building Safety & Code Compliance

2024 Mechanical Code Update: Key Changes (IMC 2018 -> 2024)

Why This Matters

The City of Flagstaff is preparing to adopt the 2024 International Mechanical Code (IMC) to improve safety, support modern mechanical system design, and coordinate with current efficiency, ventilation, and equipment standards.

Key Change	Impact
Updated Ventilation Requirements	Refinements to outdoor air and exhaust provisions improve indoor air quality and system performance; some projects may require revised duct layouts or larger equipment.
Commercial Kitchen and Exhaust Clarifications	Updated language for hoods, grease ducts, and related exhaust systems provides clearer design direction; can affect restaurant tenant improvement cost and coordination.
Refrigeration System Revisions	Changes to refrigerant-related provisions align with current safety standards and newer equipment types; may influence equipment selection and installation methods.
Duct System and Smoke Control Clarifications	Refined requirements for duct construction, fire and smoke dampers, and related protection features improve life safety but may add detail to design and inspections.
Appliance and Equipment Access	Clarifications for access, service space, and installation locations help ensure maintainability and safety; may affect roof layouts, attic access, or equipment room design.
Coordination With Newer Efficiency Standards	Mechanical designs are expected to better align with newer energy and equipment performance requirements; may increase upfront equipment cost but improve long-term operating efficiency.

What This Means

Contractors & Designers: More current rules for ventilation, equipment installation, and mechanical coordination.

Property Owners: Safer, more maintainable systems with possible upfront cost impacts depending on project scope.

Community: Better indoor air quality, improved life safety, and more efficient building systems.

Contact Information

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City of Flagstaff

Building Safety & Code Compliance

2024 Plumbing Code Update: Key Changes (IPC 2018 -> 2024)

Why This Matters

The City of Flagstaff is preparing to adopt the 2024 International Plumbing Code (IPC) to improve public health, water efficiency, and system reliability while aligning with modern materials and plumbing practices.

Key Change	Impact
Water Efficiency & Fixture Updates	Refinements to fixture flow rates and efficiency standards help reduce water use; may influence fixture selection and upfront costs but lower long-term utility expenses.
Backflow Prevention Clarifications	Updated requirements for backflow devices improve protection of potable water systems; may increase installation and testing requirements.
Water Heater & Expansion Control	Clarified requirements for thermal expansion and water heater installation improve system longevity and safety; may require additional components.
Drainage & Venting Updates	Revisions to venting methods and drainage design provide more flexibility in system layout; may simplify design in some applications.
Materials & Pipe Standards	Updated approved materials and installation standards reflect modern products; may impact material selection and availability.
Storm Drainage & Roof Systems	Improved provisions for stormwater drainage and roof systems enhance performance during heavy precipitation events; may affect sizing and design.

What This Means

Contractors & Designers: Updated standards for water systems, materials, and design flexibility.

Property Owners: More efficient and reliable plumbing systems with potential upfront cost changes.

Community: Improved water conservation, safety, and long-term infrastructure performance.

Contact Information

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City of Flagstaff – Building Safety & Code Compliance

2023 National Electrical Code Update: Key Changes (NEC 2017 → 2023)

Why This Matters: The City of Flagstaff is preparing to adopt the 2023 National Electrical Code (NEC) to improve electrical safety, support modern technologies, and address evolving electrical system demands in residential and commercial buildings.

Key Change	Impact
Expanded GFCI Protection Requirements	Ground-fault protection expanded to additional locations (including 125–250V receptacles); increases safety but may add device costs.
Expanded AFCI Protection	Arc-fault protection clarified and expanded; improves fire prevention but may increase panel and breaker costs.
Surge Protection Requirements	Surge protective devices (SPDs) required for more dwelling and service equipment; adds upfront cost but protects equipment.
Electric Vehicle (EV) Charging Infrastructure	New and expanded EV charging requirements; requires panel capacity and dedicated circuits, impacting design and cost.
Energy Storage Systems (ESS)	New provisions for battery storage systems improve safety and installation standards; may require additional equipment and space planning.
Outdoor Emergency Disconnects	New requirement for readily accessible outdoor disconnects for one- and two-family dwellings; increases safety for first responders.
Load Calculations & Demand Factors	Updated calculation methods reflect modern electrical usage patterns; may impact service sizing and equipment selection.
Renewable Energy & Solar Integration	Expanded provisions for solar PV systems and interconnection; improves clarity but requires coordination with design and utilities.
Working Space & Equipment Access	Clarifications for working clearances and equipment access improve safety and maintainability; may affect layout of electrical rooms.
Lighting & Controls Coordination	Better coordination with energy codes for lighting controls; may increase design coordination but improves efficiency.

What This Means: Designers and contractors will see updated safety and technology-driven requirements, particularly for EVs, energy storage, and surge protection. Property owners may experience higher upfront costs but benefit from improved safety and equipment protection. The community benefits from safer, more resilient electrical systems.

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City of Flagstaff

Building Safety & Code Compliance

2024 Swimming Pool & Spa Code Update: Key Changes (ISPSC 2018 → 2024)

Why This Matters

The City of Flagstaff is preparing to adopt the 2024 International Swimming Pool and Spa Code (ISPSC) to improve safety, align with modern standards, and enhance long-term durability and energy efficiency.

Key Change	Impact
Barrier & Safety Updates	Clarifications to barrier requirements and safety features to reduce drowning risks; may impact fence design and layout.
Entrapment Protection	Updated suction outlet and drain requirements; improves safety but may require additional equipment or design changes.
Energy Efficiency	New requirements for pumps, heaters, and controls; may increase upfront cost but reduce long-term operating expenses.
Water Quality & Circulation	Improved circulation and filtration standards; enhances water quality and user safety.
Electrical & Bonding Updates	Revised bonding and grounding requirements; increases safety and coordination with NEC updates.
Splash Pads & Aquatic Features	Expanded provisions for modern aquatic features; provides clearer guidance for design and permitting.

What This Means

Contractors & Designers: Updated requirements for safety, energy, and system design.

Property Owners: Safer pools with potential upfront cost increases but improved efficiency.

Community: Increased safety, especially for children and public pool users.

Contact Information

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City of Flagstaff – Building Safety & Code Compliance

2024 Energy Code Update: Key Changes (IECC 2018 → 2024)

Why This Matters: The City of Flagstaff is preparing to adopt the 2024 IECC to improve energy efficiency, reduce consumption, and support long-term sustainability.

Residential (IRC / IECC) Changes

Key Change	Impact
Stronger Insulation & Envelope Requirements	Higher insulation levels and improved air sealing reduce heat loss; increases upfront cost but lowers long-term energy bills.
Heat Pump Adoption	Encourages high-efficiency heat pumps; increases upfront cost but improves efficiency and electrification readiness.
Electric Readiness	Requires capacity for EVs and future electrification; minor upfront cost with long-term flexibility.
Enhanced Air Sealing & Testing	Stricter blower door testing improves comfort and durability; requires verification testing.
Duct Sealing & Testing	Stricter duct leakage limits improve HVAC efficiency; may increase installation/testing costs.

Commercial (IECC) Changes

Key Change	Impact
Building Performance Path Expansion	More performance-based compliance options; increases flexibility but may require energy modeling.
Lighting Efficiency & Controls	Updated lighting standards reduce energy use; may increase design coordination but lower operating costs.
Mechanical System Efficiency	Higher HVAC efficiency requirements; increases upfront cost but reduces long-term energy use.
Commissioning Requirements	Expanded commissioning ensures systems perform as designed; adds cost but improves performance.
Envelope Commissioning & Testing	Improved verification of building envelope performance; enhances durability and efficiency.
On-Site Renewable Readiness	Encourages solar readiness; may require roof space planning and conduit pathways.

What This Means: Designers/builders will see increased coordination and efficiency requirements. Property owners may see higher upfront costs but lower long-term energy expenses. The community benefits from reduced energy use and improved sustainability.

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Supplementary Information on the 2024 International Energy Conservation Code (IECC) and Radon Mitigation Amendments

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Overview of the 2024 International Energy Conservation Code (IECC)

1. 2024 IECC Compliance Options

The 2024 Residential and Commercial IECC provide multiple ways that builders can meet code requirements, thereby increasing flexibility and allowing builders to pick what works best for them:

1. Prescriptive Compliance Path – Sets specific standards that builders need to meet.
2. Simulated Building Performance Path – Uses energy modeling to compare estimated energy costs of the proposed home with energy costs of a reference home.
3. Energy Rating Index Path (Residential Only) – Uses energy modeling to calculate an energy rating index (ERI). The ERI must be less than the maximum allowed for that climate zone.

2. Key IECC Changes from the 2018 IECC to the 2024 IECC

The Pacific Northwest National Laboratory found the 2024 IECC base code improves energy efficiency, lowers utility costs, and reduces greenhouse gas (GHG) emissions over the 2018 IECC base code in Flagstaff's Climate Zone (Zone 5).

Table 1: Pacific Northwest National Laboratory (PNNL) findings on the 2024 IECC vs. the 2018 IECC

2024 Residential IECC	2024 Commercial IECC*
• 15% improvement in energy efficiency • 13% reduction in energy costs • 12% reduction in greenhouse gas (GHG) emissions	• 22% improvement in energy efficiency • 20% reduction in energy costs • 20% reduction in GHG emissions

**Commercial code estimates do not include savings from on-site renewable energy (solar) because there is a proposed amendment to make on-site solar requirements (Commercial IECC only) optional.*

3. 2024 Residential IECC

The 2024 Residential IECC is available here: [Chapter Re 1 Scope And Administration - International Energy Conservation Code \(IECC\)](#). It impacts the design of individual building systems (and the building as a whole) that could affect energy use, including:

1. Wall, roof, and floor insulation
2. Windows and skylights
3. Space cooling and heating equipment (air conditioners, furnaces, heat pumps)
4. Air distribution systems
5. Air sealing and ventilation
6. Water heaters
7. Electrical power and lighting systems
8. Appliance efficiency

The 2024 Residential IECC improves energy efficiency over the 2018 IECC through:

1. Inspections for air barriers and insulation
2. Higher efficiency windows
3. Higher efficiency skylights

4. Higher insulation values for wood frame walls
5. Additional options for floor insulation
6. Increased depth for slab edge insulation
7. Expanded ductwork design requirements to size HVAC equipment
8. Required testing of 100% of ductwork (provides for flexibility to meet standards, especially for large and smaller homes)
9. Increased insulation for hot water pipes
10. Controller added to bathroom exhaust fans (such as a timer or sensor)
11. Limits the amount of electric resistance heating to 2 kW unless a heat pump is installed
12. Increased controls for ice melt systems to prevent use when not necessary
13. Gas fireplace systems cannot be equipped with a continuous pilot light
14. Minimum efficiency for vented gas fireplace heaters
15. Minimum efficiency standards for permanent lighting
16. Automatic lighting shutoff requirements
17. Homes that choose the Prescriptive Compliance Path must earn additional energy efficiency credits (they can choose from over 50 options)

The National Association of Homebuilders provides a detailed analysis on key code changes from the 2018 to the 2024 Residential IECC: [Microsoft Word - 2024 IECC Major Changes for Tool Kit V6 Draft](#).

4. 2024 Commercial IECC

The 2024 Commercial IECC is available here: [CHAPTER CE 1 SCOPE AND ADMINISTRATION - 2024 INTERNATIONAL ENERGY CONSERVATION CODE \(IECC\)](#). It impacts the design of individual building systems (and the building as a whole) that could affect energy use, including:

- Wall, roof, and floor insulation
- Windows and skylights
- Cooling equipment (air conditioners, chillers, and cooling towers)
- Heating equipment (boilers, furnaces, and heat pumps)
- Pumps, piping, and liquid circulation systems
- Heat rejection equipment (fan cooling towers, air-cooled condensers)
- Service water heating (kitchens, lavatories, and pools)
- Electrical power and lighting systems (lighting types, densities, zones, and controls)
- Energy-using equipment (walk-in coolers and freezers, electric transformers and motors, elevators and escalators)

The 2024 Commercial IECC improves energy efficiency over the 2018 IECC through:

1. Requirements for additional information on construction documents:
 - a. Identifying the energy code compliance path
 - b. Documentation confirming air sealing
 - c. Location of pathways for routing raceways or cables from on-site renewable energy systems to electrical distribution equipment
 - d. Location and layout of designated areas for an energy storage system (ESS) and specify the rated energy and power capacity of an installed or planned ESS.

2. A thermal envelope certificate to be completed by an approved party and posted in an approved location (includes insulation values for ceilings, roofs, walls, foundations, and slabs, U-factors, solar heat gain coefficients for windows, and air leakage test results)
3. Additional insulation for metal-frame buildings
4. Alternatives for energy code compliance for balancing aesthetics and performance while maintaining key energy efficiency measures
5. Clarity in roof and ceiling insulation for projects that use the Prescriptive Compliance path
6. Requirements specifying where perimeter insulation must be installed for slab-on-grade and heated slab floors
7. Higher efficiency windows
8. Additional required items for air barrier design and documentation
9. Specific air sealing requirements for electrical and communication boxes
10. Mandatory whole-building air leakage testing for commercial buildings, raising the standard for envelope airtightness and accountability
11. Buildings that choose the Prescriptive Compliance Path must earn additional energy efficiency credits (they can choose from 40 options).

Summary of Energy Code Outreach and Engagement

Since presenting potential Energy Code options to City Council in January 2026, staff conducted community outreach and engagement to interested groups and individuals on the Energy Code. Staff gave 16 presentations and solicited feedback on the potential Energy Code updates from interested groups and City Commissions, including:

- City of Flagstaff Building and Fire Code Board of Appeals (*4 meetings*)
- City of Flagstaff 2024 Building and Fire Codes Open Houses (*2 meetings*)
- City of Flagstaff Equity Climate Advisory Group (ECAG) (*2 meetings*)
- City of Flagstaff Housing Commission
- City of Flagstaff Sustainability Commission
- Economic Collaborative of Northern Arizona (ECONA)
- Flagstaff Chamber of Commerce (*2 meetings*)
- Flagstaff First
- Friends of Flagstaff's Future (F3)
- Northern Arizona Association of Realtors (NAAR)
- Northern Arizona Climate Change Alliance (NAZCCA)
- Northern Arizona Home Builders and Remodelers Association (NAHBRA)

Staff also contacted 56 experts to provide technical expertise and solicit feedback on potential Energy Code updates. They include:

- Flagstaff and national HVAC installers and experts (5)
- Flagstaff builders, contractors, and developers (27)
- Flagstaff energy raters (3)
- Flagstaff lenders, mortgage, and insurance experts (4)
- Flagstaff radon testers and installers (3)
- Flagstaff solar installers (2)
- Local, state, and national energy policy and energy code experts (8)

- State housing advocates (2)
- Utility representatives (2)

Summary of Energy Code Feedback

- The interested groups and City Commissions that staff presented to provided a **diversity of opinions**: they tended to prefer either Energy Code option 1 (keep Flagstaff's current Energy Code) or option 3 (adopt the 2024 Energy Code with an appendix to increase energy efficiency beyond the base code).
- There were widespread **concerns about increasing housing construction costs**. As such, there was support for incentivizing instead of requiring higher energy efficiency. There were also concerns about the readiness appendices and if future residents will install solar, charge an EV, or install electric appliances.
- Staff presented calculations comparing estimated additional mortgage costs from adopting the 2024 Energy Code to estimated utility cost savings from greater energy efficiency.
 - For these calculations, staff used the:
 - 10-year average mortgage rate from Freddie Mac
 - Average downpayment rate from 2023 - 2025 from National Association of Realtor data
 - APS electric and Unisource gas rates
 - Estimated electricity and natural gas usage estimates for Flagstaff, from the recent [Flagstaff Energy Efficiency and Electrification Study](#)
 - Pacific Northwest National Laboratory energy efficiency savings estimates from the 2024 IECC compared to the 2018 IECC.
 - Estimates were presented for single family homes (2,000 – 2,500 square feet), and multifamily apartments (1,000 square feet).
 - Staff received feedback that initial cost estimates should include a 15% builder markup (in addition to simple construction costs)
 - Staff received feedback mortgage rate used in the calculations was too low (since the 10 year average is lower than current rates).
- There were concerns that **cost estimates are too low for Flagstaff**. Staff sought but could not obtain additional local data to support this claim.
- The **strongest support was for updating the energy code if other development code changes reduce overall development costs**.
- There was lots of **support to make it easier to build smaller, more affordable units**.
- There were **very few comments on radon mitigation** requirements.

In response to this feedback, City staff:

- **Contacted** the following groups:
 - Additional local builders and the Central Arizona Home Builders Association to get more Flagstaff and Arizona cost estimate data
 - Financial and insurance experts, regarding how additional construction costs impact housing costs

- Flagstaff contractors, regarding costs of readiness appendices and HVAC efficiency amendments
- **Adjusted cost estimates to:**
 - Account for inflation since reports were published, and for higher costs in Flagstaff (20% higher than Phoenix)
 - Match the unit sizes evaluated in the final LASS/CAP Code Recommendations Report (single family: 2,000 and 1,250 square feet; multifamily: 800 square feet) to better understand the wholistic cost impacts of all potential development code changes in the Building Code as well as the Zoning and Engineering Codes.
 - Include a 15% builder markup to upfront cost estimates
 - Use 7 year average mortgage rate, since that approximately is how long Flagstaff's current energy code has been in place (it was adopted in June 2019)
- Propose to **reduce insulation requirements** to lower upfront construction costs by \$350 - \$2,000+ per unit for buildings that use the prescriptive compliance path
- **Propose to adopt Energy Code Option 2 as part of the 2024 Suite of Building and Fire Codes Update, and revisit options 3 and 4 as part of broader development code updates**

Recommended amendments and appendices to the 2024 IECC

Residential IECC

Code Section	Recommended Code Change	Purpose of Adopting this Code Change	Estimated Cost Impacts from this Code Change
R202 General Definitions	Recommended Action: - Adopt an amendment to the 2024 IECC base code to expand the definition of “residential building” to allow residential buildings taller than 3 stories to opt into the Residential IECC instead of the Commercial IECC. Comparison to Flagstaff’s current code: - Apartment taller than 3 stories are required to follow the Commercial IECC.	Reduce design, construction, and operational costs (the Residential IECC offers costs savings over the Commercial IECC due to a slightly lower minimum energy efficiency standard, and fewer design and operational requirements).	<i>Estimated to provide substantial cost savings from avoided design, construction, and operational costs (exact amount is unknown).</i>
R403.7 Equipment sizing and efficiency rating	Recommended Action: - Adopt an amendment to the 2024 IECC base code to add minimum efficiency standards for gas furnaces and air source heat pumps, when installed in new construction. - Gas furnaces must be $\geq 95\%$ efficient - Air source heat pumps must be cold climate heat pumps (must operate efficiently at cold temperatures) Comparison to Flagstaff’s current code: - Gas furnaces in new construction must be $\geq 90\%$ efficient. - No current efficiency standards for air source heat pumps.	Improve energy efficiency and occupant comfort in new homes by ensuring gas furnaces and air source heat pumps are highly efficient and appropriate for Flagstaff’s cold temperatures.	- A 95% efficient gas furnaces costs approx. \$250 more than a 90% efficient furnace. - The cost of the gas furnace and cold climate heat pump are already included in the 2024 IECC base code costs estimates
R404 Lighting controls	Recommended Action: - Adopt an amendment to the 2024 IECC base code to delete requirements for dimmer switches and automatic lighting controls for indoor and outdoor lighting in new construction. Comparison to Flagstaff’s current code: - These standards are not in Flagstaff’s current code.	- Reduce construction costs to removing requirements to install more costly lighting types that provide very small energy efficiency gains.	<i>Reduce construction costs by approx. \$100 per unit</i>
R402.1.2, Insulation and fenestration criteria	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.	Clarify insulation requirements in existing buildings apply to new construction only.	Reduces construction costs compared to the base energy code.

R402.1.3 Minimum R- Values and Fenestration Requirements by Components	Recommended Action: • Adopt an amendment to the 2024 IECC base code to reduce the required insulation in new construction from R-30 to: ○ R-21 cavity insulation ○ or R-13 + R-5 continuous insulation ○ or R-15 continuous insulation <i>This amendment only applies to buildings that choose the prescriptive compliance path to meet IECC standards.</i> <u>Comparison to Flagstaff's current code:</u> • Flagstaff's current code requires R-19 insulation for buildings that choose the prescriptive compliance path.	• Maintains current, standard construction methods • Simplifies construction and inspections • Reduces construction costs • Balances energy efficiency goals with practical construction realities (R-21 insulation is higher than Flagstaff's current code and will still provide strong thermal performance for Flagstaff's climate).	<i>Reduce construction costs by \$350 - \$2,000+ per unit, depending on unit size for buildings that use the prescriptive path only. However, less insulation may also reduce utility cost savings compared to the adopting 2024 IECC without this amendment.</i>
Appendix NB/RB: Solar- ready provisions – detached one- and two-family dwellings and townhouses	Recommended Action: Adopt these appendices with amendments to continue current requirements for single family homes and duplexes to: • Show solar-readiness on construction plans and reserved space on the electrical service panel. • Include an amendment to delete requirements to install capped roof penetrations. <u>Comparison to Flagstaff's current code:</u> Flagstaff adopted these appendices in 2019 with similar amendments. <u>Direct link to this appendix:</u> APPENDIX RB SOLAR READY PROVISIONS DETACHED ONE AND TWO FAMILY DWELLINGS AND TOWNHOUSES - 2024 INTERNATIONAL ENERGY CONSERVATION CODE (IECC)	• Make it easier for residents in single family homes, townhomes, and duplexes to install solar panels or solar thermal systems in the future. • Avoid thousands in costly future retrofits by ensuring there is room on the roof and the electrical panel to support future solar panels.	<i>No additional construction costs (already in Flagstaff's current code; existing costs are \$100 - \$150 per unit).</i>
Appendix NK/RK: Electric- Ready Residential Construction	Recommended Action: Adopt this appendix with amendments to add requirements to install outlets close to the dryer, stove, and water heater, and leaving room on the electrical panel for future electric appliances. <u>Comparison to Flagstaff's current code:</u> This appendix did not exist in 2019. Adopting this appendix would add new standards to Flagstaff's code. <u>Direct link to this appendix:</u> • Appendix Rk Electric Ready Residential Building Provisions - International Energy Conservation Code (IECC)	• Enhance customer choice by making it easier to switch to electric appliances in the future.	• <i>Increase construction costs by \$1,100 - \$1,500 per unit.</i> • <i>Save \$1,500+ per outlet (\$4,500+ total) on costly and difficult future retrofits.</i>

Appendix NE/RE: Electric Vehicle Charging Infrastructure. See the *Electric Vehicle (EV) Charging Infrastructure* section on page 12 for more information.

Appendix RL: Renewable Energy Infrastructure	Recommended Action: • Adopt these appendices with amendments to continue current requirements for multifamily residential buildings to show solar-readiness on construction plans and provide reserved space on the electrical service panel. Comparison to Flagstaff's current code: • This appendix did not exist in 2019. However, Flagstaff adopted the commercial solar-ready appendix, which requires multifamily residential to meet solar-readiness requirements. Direct link to this appendix: • Appendix RL Renewable Energy Infrastructure - International Energy Conservation Code (IECC)	• Extend Flagstaff's current solar-ready requirements to multifamily buildings to make it easier install solar panels and/or solar thermal systems in the future.	<i>No additional construction costs (already in Flagstaff's current code; existing costs are \$100 - \$150 per unit).</i>
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Commercial IECC

Code Section	Recommended Code Change	Purpose of Adopting this Code Change	Estimated Cost Impacts from this Code Change
-C101.2 Scope -C101.4 Compliance -C202 General Definitions	Recommended Action: Adopt an amendment to the 2024 IECC base code to expand the definition of “residential building” to allow residential buildings taller than 3 stories to opt into the Residential IECC instead of the Commercial IECC. Comparison to Flagstaff’s current code: Apartments taller than 3 stories are required to follow the Commercial IECC.	Reduce design, construction, and operational costs (the Residential IECC offers costs savings over the Commercial IECC due to a slightly lower minimum energy efficiency standard, and fewer design and operational requirements).	<i>Substantial cost savings from avoided design, construction, and operational costs (exact amount is unknown).</i>
Table C402.1.3 Opaque Building Thermal Envelope Insulation Component Minimum Requirements	Recommended Action: Reduce the required insulation in new construction from R-30 to: - R-0 cavity insulation + R-16 continuous insulation (ci); or - R-13+R-7.5ci; - or R20+R3.8ci; - or R-21 These requirements only apply to buildings meet Energy Code standards using the prescriptive compliance path. Comparison to Flagstaff’s current code: Flagstaff’s current code requires: - R-13 + R-3.8 ci; or - R-20	This amendment maintains standard 2x6 wall construction methods, which: - Simplifies construction methods and inspections - Reduces construction costs - Balances energy efficiency goals with practical construction realities (R-21 insulation is higher than Flagstaff’s current code and will still provide strong thermal performance for Flagstaff’s climate).	<i>Substantially reduce construction costs (exact costs unknown) but also reduce utility cost savings from improved energy efficiency.</i>
C405.12 Automatic Receptacle Control	Recommended Action: Delete requirements for outlets that shut off automatically. Comparison to Flagstaff’s current code: These standards are not in Flagstaff’s current code.	Reduce construction costs	<i>Reduce construction costs</i>
R405.13 Energy Monitoring	Recommended Action: Make it optional for buildings to provide energy monitoring equipment. Comparison to Flagstaff’s current code: These standards are not in Flagstaff’s current code.	Reduce design, construction, and operational costs	<i>Reduce design, construction, and operational costs</i>
R405.15 Renewable Energy	Recommended Action:	Reduce design and construction costs	<i>Reduce design and construction costs</i>

	Make it optional for buildings to provide renewable energy (solar). <u>Comparison to Flagstaff's current code:</u> These standards are not in Flagstaff's current code.		
Appendix CB: Solar Energy Zone-- Commercial	<u>Recommended Action:</u> Show solar-readiness on construction plans and reserve space on the electrical service panel to support future solar photovoltaic panels and solar thermal systems. <u>Comparison to Flagstaff's current code:</u> Flagstaff adopted this appendix in 2019.	• Make it easier for building owners to install solar panels or solar thermal systems in the future. • Avoid thousands in costly future retrofits by ensuring there is room on the roof and the electrical panel to support future solar panels.	<i>Save thousands on costly and difficult future retrofits.</i>
Appendix CG: Electric Vehicle Charging Infrastructure	<u>Recommended Action:</u> • Require a 240-volt outlet in garages in new construction • Reduce the number of required EV parking spaces in new development from 100% (original appendix text) to 1% - 45%, depending on building type • Allow requirements to be met with EV capable, EV-ready, and full EV spaces. • Allow for substitutions in EV space types to provide greater flexibility to meet standards. • Developments with fewer than 15 parking spaces (excluding apartments) are exempt from EV charging requirements. <u>Comparison to Flagstaff's current code:</u> • Flagstaff currently requires a 240 volt outlet in garages and up to 3 EV capable spaces in new parking lots. Adopting this appendix would expand EV charging standards over Flagstaff's current code.	Ensure residents in new single- and multifamily developments have access to EV charging at home (at-home charging is the least costly way to charge and multifamily residents usually have less access to at-home charging. In Arizona 1 in 12 new cars are electric, and ADOT anticipates there will be more than 1 million EVs in Arizona by 2030).	<i>Add to construction costs:</i> • <i>EV capable spaces: \$0 - \$300*</i> • <i>Level 2 EV charger: \$3,000 - \$12,000 per charger</i> <i>Avoid costly future retrofits for EV parking space (\$5,500 per space; excluding the cost of the charger)</i> <i>*Flagstaff's code already requires some EV capable spaces.</i>
Appendix CH: Electric-Ready Commercial Building Provisions	<u>Recommended Action:</u> • Show locations of future electric space heating equipment on construction plans • Provide infrastructure to support future electric space heating • Install outlets close to the dryer, stove, and water heater • Provide electrical panel capacity for future electric appliances <i>*Does not require the installation of a specific appliance type*</i> <u>Comparison to Flagstaff's current code:</u>	• Enhance customer choice by making it easier to switch to electric appliances in the future,	<i>Add to construction costs (exact costs are unknown) but save thousands on costly future retrofits.</i>

	This appendix did not exist in 2019. Adopting this appendix would add new standards to Flagstaff's code.		
Appendix CI: Demand Responsive Controls	Recommended Action: • In new construction, water and space heating systems must be able to receive a demand response signal from APS, such as through a smart thermostat • Delete requirements for demand responsive controls for lighting. Comparison to Flagstaff's current code: • This appendix did not exist in 2019. Adopting this appendix would add new standards to Flagstaff's code.	• Installs infrastructure that enables building owners and tenants to opt into demand response programs, such as the APS Cool Rewards program, in exchange for lower utility bills • Avoids costly future retrofits	<i>Add to construction costs (exact costs are unknown) but save thousands on costly future retrofits.</i>

Electric Vehicle (EV) Charging Infrastructure Appendices

Residential Appendices

Code Section: Appendix RE/NE: Electric Vehicle Charging Infrastructure

Recommended Action:

- Adopt this appendix with amendments to **continue** current requirements for homes with garages and **expand** requirements to install EV charging infrastructure in parking lots.

Single-family homes and duplexes:

- Install a 240-volt outlet (EV ready space) in the garage or next to the parking space for the unit
- For duplexes, both units can share 1 outlet if no garage is provided,

Multifamily development (3+ units):

- Install a 240-volt outlet (EV ready space) in the garage (if a garage is provided)
- If no garage is provided, install EV charging infrastructure according to the table below:

Building Type	Level 2 EVSE spaces	EV capable or EV ready spaces
Apartments 3 stories or less with 15 or fewer parking spaces	0%	20%
Apartments 3 stories or less with more than 15 fewer parking spaces	5%	15%
Apartments greater than 3 stories	5%	25%
Group homes 3 stories or less with more than 15 parking spaces	0%	7%

Note: staff propose to reduce the minimum requirement for EV parking spaces from 40% in the original appendix text to 0% - 25% depending on building type, size and number of parking spaces provided.

- EV charging infrastructure space types:
 - EV capable spaces:** Electrical infrastructure is present (in the wall or ground), but the outlet is not installed.
 - EV ready spaces:** Electrical infrastructure is installed near the parking space (a 240-volt outlet in garages), but no dedicated EV charger is present.
 - Electric vehicle supply equipment (EVSE) or EV installed spaces:** EV charger is fully installed.



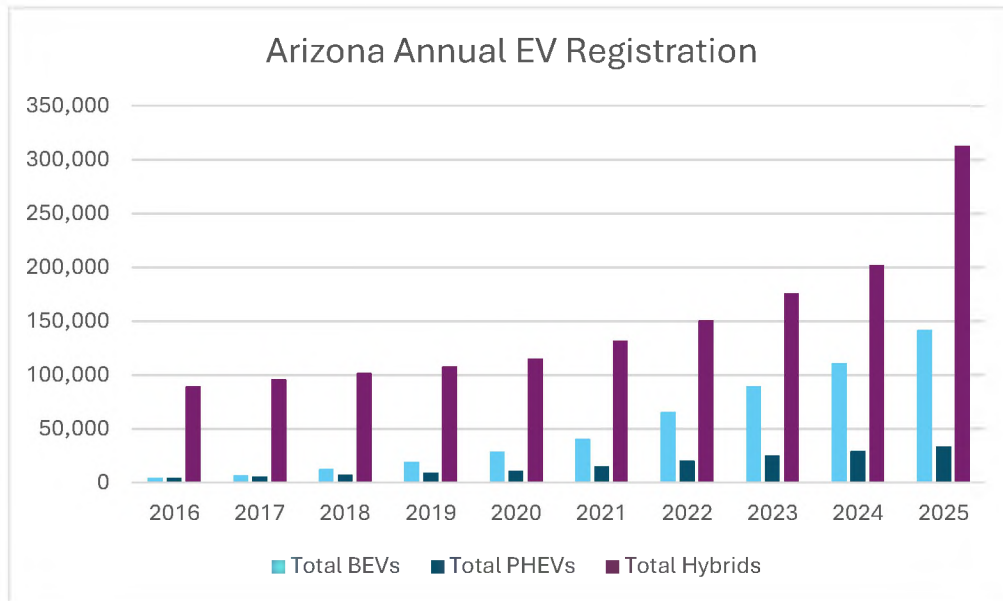
- Other amendments:
 - Allow for substitutions in EV space types, including charger types, to provide greater flexibility for developers to meet standards.
 - Include exceptions to waive EV charging infrastructure requirements if electric distribution capacity is not available, or if costs are prohibitive

Comparison to Flagstaff's current code:

- Flagstaff currently requires homes with garages to install a 240-volt outlet (EV ready space) in the garage. Adopting this appendix would continue these requirements.
- Flagstaff currently requires up to 3 EV capable spaces to be installed in new parking lots. Adopting this appendix would expand EV charging infrastructure requirements.

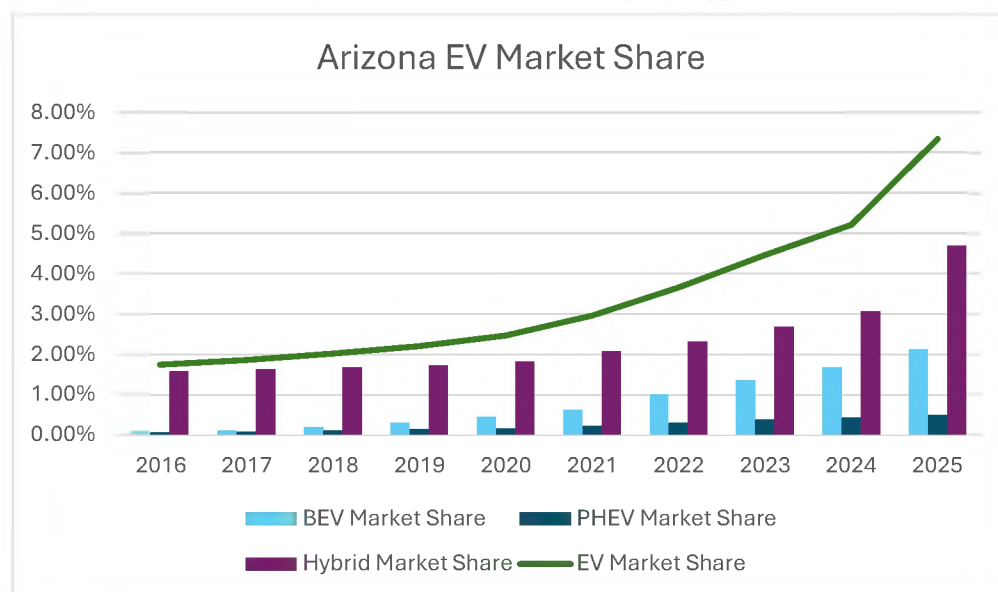
Purpose of adopting this code change:

- Support at-home EV charging.
 - EV adoption is growing: the **number of fully electric vehicles has increased 30 times since 2016**. In Arizona 1 in 12 new cars are electric, and ADOT anticipates there will be more than 1 million EVs in Arizona by 2030.



Source: Arizona Department of Motor Vehicles (2026).

Note: BEV = battery electric vehicle (fully electric), PHEV = Plug-in Hybrid Electric Vehicle, and total hybrids = PHEVs + other hybrid vehicles that do not get plugged in.



Source: Arizona Department of Motor Vehicles (2026).

- On average, EVs are less costly to operate and maintain than vehicles powered by gasoline.
 - In Arizona, households spend more on gasoline than electricity. As prices increase, models estimate switching to electricity from gasoline as a fuel source can lower transportation costs. Source: <https://energywallet.epri.com/en/map.html>.
- 90% of EV charging occurs at home:
 - This appendix ensures residents in new single- and multifamily developments have access to EV charging at-home (at-home charging is the least costly way to charge).
 - Multifamily residents usually have less access to at-home charging; this “charging gap” creates equity issues by reducing access to EV’s - a less expensive form of transportation.
- Avoid costly future retrofits:
 - 240-volt outlet: \$1,500+ (*note: a 240-volt outlet also supports other high-energy appliances, such as a clothes dryer, power washer, welder, etc.*)
 - EV parking space: \$5,500

Estimated Cost Impacts

- Residential buildings with individual garages: \$0 in additional construction costs (cost are already in Flagstaff’s code)
- Single family and duplex buildings with no garage: \$325 - \$650 in additional construction costs per unit.
- Multifamily buildings (3+ units) without individual garages:
 - \$0 to \$850 per unit, depending on development size, the number of EV spaces required, and the level of EV infrastructure required.

Commercial Appendix

Code Section: Appendix CG: Electric Vehicle Charging Infrastructure

Recommended Action:

- Adopt this appendix with amendments to **expand** requirements to install EV charging infrastructure in parking lots.
 - Allow for substitutions in EV space types, including charger types, to provide greater flexibility for developers to meet standards.
 - Include exceptions to waive EV charging infrastructure requirements if electric distribution capacity is not available, or if costs are prohibitive
 - Require the installation of EV spaces in new development according to the table below:

OCCUPANCY	LEVEL 2 EVSE SPACES	EV READY SPACES	EV CAPABLE SPACES
Group A (assembly)	5%	0%	10%
Group B (business)	5%	5%	10%
Group E (educational)	5%	5%	10%
Group F (factory)	2%	0%	5%
Group H (high-hazard)	1%	0%	0%
Group I (institutional)	5%	0%	10%

Group M (mercantile)	5%	0%	10%
Group R-1 (hotels)	5%	10%	15%
Group R-2 (residential)	5%	10%	15%
Groups R-3 and R-4 (residential)	0%	2%	5%
Group S (storage) exclusive of parking garages	1%	0%	0%
Group S-2 (storage, moderate-hazard) parking garages	15%	0%	30%

Comparison to Flagstaff's current code:

- Flagstaff currently requires homes with garages to install a 240-volt outlet (EV ready space) in the garage. Adopting this appendix would continue these requirements.
- Flagstaff currently requires up to 3 EV capable spaces to be installed in new parking lots. Adopting this appendix would expand EV charging infrastructure requirements.

Purpose of adopting this code change:

- Support at-home EV charging.
 - EV adoption is growing: in Arizona 1 in 12 new cars are electric, and ADOT anticipates there will be more than 1 million EVs in Arizona by 2030.
- 90% of EV charging occurs at home:
 - This appendix ensures residents in new single- and multifamily developments have access to EV charging at-home (at-home charging is the least costly way to charge).
 - Multifamily residents usually have less access to at-home charging; this “charging gap” creates equity issues by reducing access to EV's - a less expensive form of transportation.
- Avoid costly future retrofits:
 - 240-volt outlet: \$1,500+ (*note: a 240-volt outlet also supports other high-energy appliances, such as a clothes dryer, power washer, welder, etc.*)
 - EV parking space: \$5,500

Estimated Cost Impacts

- *Residential buildings with individual garages: \$0 in additional construction costs (cost are already in Flagstaff's code)*
- *Single family and duplex buildings with no garage: \$325 - \$650 in additional construction costs per unit.*
- *Multifamily buildings (3+ units) without individual garages:*
 - *\$0 to \$850 per unit, depending on development size, the number of EV spaces required, and the level of EV infrastructure required.*

Cost Estimates (Residential Energy Code)

Upfront cost estimates

Cost estimates are presented for the 2024 Residential IECC because more data are available (very little data are available for commercial buildings because there are so many different types). These cost estimates are based on local and national data sources, including:

- American Gas Association
- Bipartisan Policy Center
- Bureau of Labor Statistics
- Capstone Homes
- Central Arizona Association of Homebuilders
- CoolCalc
- Electric Power Research Institute
- The 13 local builders, contractors, and designers that participated in the [Flagstaff Energy Efficiency Study](#)
- FreddieMac
- Miramonte Homes
- National Association of Homebuilders
- National Association of Realtors
- NerdWallet
- Rocky Mountain Institute (RMI)
- Realtor.com
- Utility Dive
- U.S. Department of Energy
 - Energy Information Administration
 - Pacific Northwest National Laboratory
 - Lawrence Berkeley National Laboratory
 - National Renewable Energy Laboratory (NREL) Building Energy Optimization Tool (BEopt)
- Zillow.com

These estimates include costs from local amendments, including cost savings from a reduction in required insulation amounts for buildings that choose the prescriptive compliance path. They also assume a 5.26% mortgage rate, which is the average mortgage rate for the past 7 years (Flagstaff's current energy code was adopted approximately 7 years ago, in June 2019). Energy usage and cost estimates from the U.S. Department of Energy and the [Flagstaff Energy Efficiency Study](#). Utility costs are estimated to increase 4.39% annually, based on projected local utility rate increases and broader inflation.

Single-Family Homes and Duplexes

Code Section	Upfront Cost 2,000 sf	Upfront Cost 1,250 sf	Cost Savings
2024 IECC Base Code	~\$7,000 ~\$1,100 – 15,700	~\$5,600 ~\$800 – 12,300	~13% reduction in energy costs
Electric-Ready Appendix	~\$1,200 ~\$1,010 – \$1,500	~\$1,200 ~\$1,010 – \$1,500	Avoids future retrofits ~\$1,500+ per appliance ~\$4,500+ total
Solar-Ready Appendix	~\$150*	~\$150*	Avoids future retrofits ~\$1,000+
EV Charging Appendix	~\$650*	~\$650*	Avoids future retrofits ~\$1,500+

* Already included in Flagstaff's current code. These numbers represent average cost estimates based on the best available data.

Multifamily Apartments and Condos (buildings with 3+ housing units)

Code Section	Upfront Cost Per unit (800 sf)	Cost Savings
2024 IECC Base Code	~\$2,300 ~\$0 - 5,400	~13% reduction in energy costs
Electric-Ready Appendix	~\$1,200 ~\$1,010 – \$1,500	Avoids future retrofits ~\$1,500+ per appliance ~\$4,500+ total
Solar-Ready Appendix	~\$150*	Avoids future retrofits ~\$1,000+
EV Charging Appendix	~\$450 ~\$0 – 850	Avoids future retrofits ~\$1,500+

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*Already included in Flagstaff’s current code. These numbers represent average cost estimates based on the best available data.

Mortgage costs compared to utility cost savings

These cost estimates are based on adopting the 2024 IECC base code with the proposed local amendment to reduce insulation amounts for buildings that take the prescriptive compliance path.

2,000 square-foot single-family home

Energy cost savings	13%*
Additional up-front cost	\$7,000

	Monthly	Annual	Over 30 years
Additional mortgage cost	\$32	\$379	\$11,376
Utility savings	\$38	\$451	\$13,533

	With a mortgage	Without a mortgage
Savings over 30 years	\$2,156	\$6,519
ROI	19%	93%

*Due to the proposed local amendment to reduce the required insulation amount, homes that use the prescriptive compliance path may experience lower energy cost savings in line with a lower upfront investment. Note that most builders use the performance or energy rating index (ERI) paths, not the prescriptive path.

800 square-foot multi-family home

Energy cost savings	13%*
Additional up-front cost	\$2,300

	Monthly	Annual	Over 30 years
Additional mortgage cost	\$10	\$123	\$3,686
Average utility savings	\$31	\$371	\$11,116

	With a mortgage	Without a mortgage
Savings over 30 years	\$7,430	\$8,844
ROI	318%	416%

*Due to the proposed local amendment to reduce the required insulation amount, homes that use the prescriptive compliance path may experience lower energy cost savings in line with a lower upfront investment. Note that most builders use the performance or energy rating index (ERI) paths, not the prescriptive path.

Radon Mitigation Amendments and Appendices

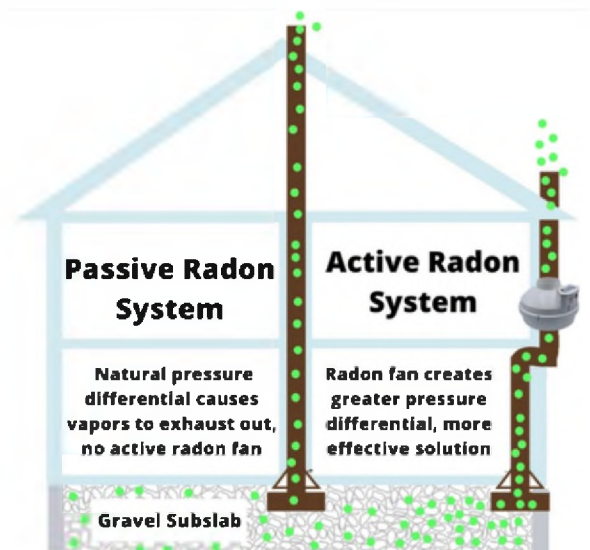
Code Sections:

- 2024 International Residential Code (IRC) Appendix BE Radon Control Methods
- 2024 International Mechanical Code (IMC): Section 511 Sub-Slab Soil Exhaust Systems

Recommended Code Change:

Recommended Action:

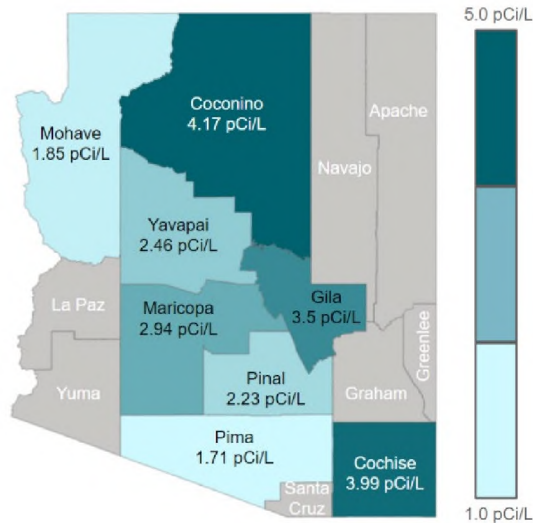
- Adopt Appendix BE: Radon Control Methods with an amendment to make radon control standards mandatory for all new construction of single-family homes and duplexes, including:
 - Install a passive radon mitigation system in new residential construction, including:
 - Material under floor systems is permeable
 - Vapor barrier in the floor
 - Sealing potential radon entry routes
 - Passive vents in crawl spaces
 - Provide an electrical circuit to support a future radon fan
 - Conduct post-construction radon testing
 - Install a radon fan (active mitigation) if the home tests greater than 4 pCi/L
- Adopt an amendment to the 2024 IMC to require a subslab soil exhaust system (an air duct system that vents above the building roof) for all other new construction where the building foundation is in contact with the ground.



Purpose of adopting this code change

- Radon is an odorless, colorless gas created by the breakdown of uranium in the soil. It concentrates in buildings without radon mitigation systems.
- Radon is the leading cause of lung cancer in non-smokers (the U.S. Environmental Protection Agency estimates 21,000 die in the U.S. annually from lung cancer caused by radon exposure)
- The EPA maximum recommended exposure level is 4.0 picocuries per liter (pCi/L) (this is equivalent to 200 chest x-rays annually). There is no safe level of radon exposure, but risk decreases as radon concentration decreases.
- Radon is present in Flagstaff and Coconino County (*see graphic on next page for more information*)
 - Per the State of Arizona: the average tested indoor radon concentration in Coconino County is 4.17 pCi/L
 - Per local radon testers: 70% of Flagstaff homes test greater than 2 pCi/L and 45% of homes test greater than 4 pCi/L
- Radon mitigation can reduce radon exposure for people who live and work in new buildings
- Radon mitigation at construction is easier, less costly, and more effective than installing a radon mitigation system (radon fan) as a retrofits

Average Radon Test Result by AZ County



Source: Arizona Department of Health Services, Radon Surveillance

Comparison to current code:

- Flagstaff adopted Appendix BE in 2019 with optional radon mitigation standards. Adopting this appendix with the proposed amendment would make these standards required for all new single-family and duplex homes.
- Adopting the recommended amendment to the IMC would add new radon mitigation standards to new residential buildings with more than 3 units, and commercial buildings.

Estimated Cost Impacts

Cost estimates: Radon mitigation (residential)

Code Section	Upfront Cost Per Housing Unit	Cost Savings
Passive radon mitigation	~\$700 ~\$300 – 1,500	Minimizes the need to install a radon mitigation system later
Radon testing	~\$170 ~\$135 – 200	Testing at construction is less costly
Radon fan (active mitigation) <i>only if needed</i>	~\$2,250 ~\$2,200 – 2,300	

These numbers represent average cost estimates based on the best available data.

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**Section 5-02-001
FIRE CODE**

Sections:

- 5-02-001-0001 ADOPTION OF 2024 INTERNATIONAL FIRE CODE AND 2024 INTERNATIONAL WILDLAND-URBAN INTERFACE CODE
- 5-02-001-0002 FIRE PREVENTION DIVISION: ESTABLISHMENT, DUTIES:
- 5-02-001-0003 SAVING CLAUSE
- 5-02-001-0004 VIOLATION AND PENALTIES
- 5-02-001-0005 AMENDMENTS

5-02-001-0001 ADOPTION OF 2024 INTERNATIONAL FIRE CODE AND 2024 INTERNATIONAL WILDLAND-URBAN INTERFACE CODE

There are hereby adopted by the City of Flagstaff for the purpose of prescribing regulations governing conditions hazardous to life and property from fire or explosion, those certain Codes known as the 2024 International Fire Code and the 2024 International Wildland-Urban Interface Code, as amended below.

Said codes have been adopted as part of a public record through Resolution No. 2026-XX on October 6, 2026, entitled "The 2024 Suite of Building and Fire Codes and Related Amendments to City Code, Title 4, Building Regulations, and Title 5, Fire Code," one hard copy and one electronic copy of which are on file in the office of the City Clerk, made a part hereof as if fully set out in this chapter.

5-02-001-0002 FIRE PREVENTION DIVISION: ESTABLISHMENT, DUTIES:

- A. The International Fire Code and International Wildland Urban Interface Code shall be enforced by the Fire Prevention Division.
- B. The Fire Chief of the City shall be in charge of the Fire Prevention Division and may detail such members of the Fire Department as necessary to administer fire prevention efforts.

5-02-001-0003 SAVING CLAUSE

Nothing in this chapter or in the International Fire Code 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.

5-02-001-0004 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 property, 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.

5-02-001-0005 AMENDMENTS

The following provisions shall have the effect of either amending, adding to, or deleting from the International Fire Code, 2024 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."

Delete and replace section 101.2.1 as follows:

[A] 101.2.1 Appendices: The following appendices are adopted and amended as part of this Code by the City of Flagstaff: B, C, D, E, F, G, H, I, J, L, and N as added and/or amended.

Appendix B Fire-Flow Requirements for Buildings

Appendix C Fire Hydrant Locations and Distribution

Appendix D Fire Apparatus Access Roads

Appendix E Hazard Categories

Appendix F Hazard Ranking

Appendix G Cryogenic Fluids – Weight and Volume Equivalents

Appendix H Hazardous Materials Management Plan (HMMP) and Hazardous Materials Inventory Statement (HMIS) Instructions

Appendix I Fire Protection Systems—Noncompliant Conditions

Appendix J Building Information Sign

Appendix L Requirements for Fire Fighter Air Replenishment Systems

Appendix N Indoor Trade Shows and Exhibitions

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 105.5.36 Open Burning, by deleting

Exception: Recreational fires.

Add Section 105.6.26 Electronic access control systems:

Construction permits are required to install or modify an electronic access control system, as specified in Chapter 10. A separate construction permit is required to install or modify a fire alarm system that may be connected to the access control system. Maintenance performed in accordance with this code is not considered to be a modification and does not require a permit.

Add Section 105.6.27 Electric vehicle (EV) charging stations:

Construction permits are required to install or modify an electric vehicle charging station. Maintenance performed in accordance with this code is not considered to be a modification and does not require a permit.

Add to section 110.3 as follows: [A] 110.3 Recordkeeping:

Fire system annual maintenance inspection reports shall be submitted through the web-based third-party reporting service, The Compliance Engine.

Amend Section 113.4 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
- Work Shop

Chapter 3, IFC, General requirements

Add Section 323 Electric Vehicles (EVs).

323.1 Electric Vehicle Charging Stations. Electric vehicle (EV) charging stations shall not be located inside buildings, except where approved for parking garage locations as per the National Electrical Code.

323.1.1 Charging Stations Inside Parking Garage. EV charging stations located in parking garages shall be located at grade level along the exterior perimeter walls and shall be within 150 feet of fire apparatus access roadway or shall be located on the top level of the garage with no roof above.

323.1.2 Charging Stations inside R-3 and R-4 occupancies. Approved charging stations in the private garage shall have a listed heat alarm installed in the garage and interconnected to the smoke alarms inside the dwelling.

323.2 Disconnect. Locations containing electric vehicle charging stations shall be provided with a clearly identified and readily accessible emergency disconnect installed in an approved location. The emergency disconnects for exterior electric vehicle charging stations shall be located within 100 feet (30 480 mm) of, but not less than 20 feet (6096 mm) from the charging

stations, unless otherwise approved by the fire code official.

323.2.1 Height. The height of the emergency disconnect switch shall be not less than 42 inches (1067 mm) and not more than 48 inches (1219 mm) measured vertically, from the floor level to the activating button.

323.2.2 Emergency Disconnect Sign. Emergency disconnect devices shall be distinctly labeled as: "EMERGENCY ELECTRIC VEHICLE CHARGER DISCONNECT." Signs shall be placed in an approved location and shall consist of all of the following:

1. White reflective background with red letters.
2. Weather-resistant durable material.
3. Lettering not less than 2 inches (51 mm) high.
4. Permanently affixed to the building or structure in an approved manner.

CHAPTER 5. IFC. Fire Service Features

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 30 feet inside, 50 feet outside, or 40 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 505.1 Address Numbers, to Read:

505.1 Address Identification. New and existing buildings shall be provided with approved address identification. The address identification shall be legible and placed in a position that is visible from the street or road fronting the property. Address identification characters shall contrast with their background. Address numbers shall be Arabic numbers or alphabetical letters. Numbers shall not be spelled out. Each character shall be not less than 6 inches (152.4 mm) high with a minimum stroke width of 1/2 inch (12.7 mm). Where required by the fire code official, address numbers shall be provided in additional approved locations to facilitate emergency response. Where access is by means of a private road, buildings do not

immediately front a street, and/or the building cannot be viewed from the public way, a monument, pole or other sign with approved 6 inch (152.4 mm) height building numerals or addresses and 4 inch (101.6 mm) height suite/apartment numerals of a color contrasting with the background of the building or other approved means shall be used to identify the structure. Buildings in multi-building complexes must be marked with 12" minimum height numbers. Approved identification shall also be provided on the rear door(s) at any location where access into the building may be difficult to determine.

Address identification shall be maintained.

Exception: R-3 Single Family occupancies shall have approved numerals of a minimum 4 inches (88.9 mm) in height and a color contrasting with the background clearly visible and legible from the street fronting the property.

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.

Add a new section as follows: 510.5.6 Emergency responder communication enhancement system (ERCES) infrastructure:

New buildings or structures shall be required to install, at a minimum, two-inch (2") Electrical Metallic Tubing (EMT) conduit (between floors where applicable) dedicated for potential ERCES use. The conduit will have a breakout box in an equipment room for cables to be pulled. Guide wire will be provided in the conduit (between each floor, where applicable) in the breakout box. Conduit and breakout boxes shall be installed in accordance with NFPA 70. The conduit and breakout box will be labeled "PUBLIC SAFETY USE ONLY!". If it is determined that after all construction is complete that ERCES equipment is required, the conduit will make installation easier and more economical to the building owner. Such ERCES infrastructure shall be provided for the following:

1. New multi-story or multi-level buildings or structures;
2. New single-story buildings or structures totaling 45,000 square feet (4180 m²) or more in size;
3. New buildings or structures containing a basement or other subterranean space totaling 250 square feet (23 m²) in size.
4. Any new building or structure that the fire code official has determined to have been constructed in a manner which may limit, or with materials likely to limit, the ability of emergency response personnel to effectively use emergency radio communication while within that building or structure.

New building or structures containing any underground parking areas will be required to provide the capability for a future rooftop antenna to be installed, if deemed necessary, in addition to the above requirements for ERCES infrastructure.

CHAPTER 9. IFC. Fire Protection Systems

Add to section 901.4 as follows:

901.4.8 Installation: The layout, calculation, and installation of fire protection systems shall be performed by persons knowledgeable and trained in such systems. Only qualified professionals (NICET Level III or higher) or qualified Arizona registrants shall design or modify fire alarm systems or sprinkler systems requiring hydraulic calculation engineered to the standards outlined in Section 903.3.1.1. Contractors are required to possess a current Arizona License from the Register of Contractors to install fire protection systems. The installer shall follow all manufacturer guidelines for installation, inspection and testing. Contractors shall maintain certification when required by the manufacturer.

Add a new subsection as follows:

901.4.7.5 Minimum size: Rooms containing fire pump equipment and fire riser rooms for sprinkler systems installed in accordance with Section 903.3.1.1 shall be a minimum of four feet (121 cm) by four feet (121 cm) in size.

Add a new subsection as follows:

901.4.7.6 Room access: Pump and fire riser rooms shall have a door directly accessible from the exterior of the building.

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 A, 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 903.2.2 entitled Group B, by adding:

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 903.2.3 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 is used to manufacture lithium-ion or lithium metal batteries.
5. A group F-1 occupancy is used to manufacture vehicles, energy storage, or equipment containing lithium-ion or lithium batteries where the batteries are installed during manufacturing process.

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).

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 fire area.

Exception: As limited by Arizona Revised Statutes

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.
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).
5. A group S-1 fire area used for the storage of lithium-ion or lithium metal powered vehicles where the fire area exceeds 500 square feet.

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).
5. A group S-1 fire area used for the storage of lithium-ion or lithium metal powered vehicles where the fire area exceeds 500 square feet.

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.
3. Where the fire area of open parking garage exceeds 48,000 square feet.

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 3107 Outdoor Assembly Events, by adding table 3107.3

Outdoor Assembly Events Table 3107.3

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

Amend Section 3107 by adding:

3107.3.3 Exit Width The aggregate clear width of exits shall be a minimum of 36 "width wide for each 500 persons to be accommodated

3107.3.4 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.

3107.3.5 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 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.

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 all-weather driving surface capable of supporting the imposed load of fire apparatus weighing at least 80,000 pounds.

Amend Section D107 Exception 1. to read:

1. Where there are ~~more than~~ 31 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. 51 or more dwelling units will require two separate and approved fire access roads regardless of automatic sprinkler system installation.

City of Flagstaff – Flagstaff Fire Department

2024 IFC Significant Changes & Cost Impacts (2018 IFC → 2024 IFC)

This analysis summarizes fire-code-specific development impacts associated with adoption of the 2024 International Fire Code (IFC) compared with the 2018 IFC.

Primary IFC Cost Drivers: Fire protection systems, fire apparatus access, smoke control systems, hazardous materials controls, emergency responder communications, and lithium-ion battery / energy storage safety requirements.

Occupancy Group	Typical Cost Increase	Primary Cost Drivers
Group A	0.5%–2%	Crowd safety systems, smoke control, emergency communications
Group B	0.25%–1%	Monitoring, access, fire alarm coordination
Group E	0.5%–1.5%	Egress, lockdown coordination, alarm systems
Group F	1%–4%	Hazard controls, suppression upgrades
Group H	3%–10%+	Hazardous materials, explosion control
Group I	1%–5%	Defend-in-place systems, smoke compartments
Group M	0.5%–2%	Notification systems, storage limitations
Group R-1	0.5%–2%	Alarm integration, emergency communication
Group R-2	0.5%–2.5%	Smoke control, sprinkler coordination
Group R-3	0%–1.5%	Access roads, hydrants
Group R-4	1%–3%	Residential care safety systems
Group S	1%–5%	High-piled storage, rack protection
Group U	Minimal	Access and operational compliance

Group A — Assembly

Enhanced occupant notification, emergency responder radio coverage, smoke control testing/documentation, crowd management operational requirements, and kitchen suppression coordination. Typical increase: 0.5%–2%.

Group B — Business

Fire alarm coordination, monitoring requirements, responder communication systems, and lithium-ion battery review. Typical increase: 0.25%–1%.

Group E — Educational

Emergency notification systems, lockdown coordination, egress management, and operational review. Typical increase: 0.5%–1.5%.

Group F — Factory Industrial

Industrial suppression systems, hazardous exhaust, dust collection protection, and flammable liquid controls. Typical increase: 1%–5%+.

Group H — High Hazard

Explosion control, gas detection, spill containment, deflagration venting, and emergency shutdown systems. Typical increase: 3%–10%+.

Group I — Institutional

Smoke compartmentation, defend-in-place systems, staff notification systems, and emergency power integration. Typical increase: 1%–5%.

Group M — Mercantile

Occupant load notification, high-piled storage coordination, and fire alarm modernization. Typical increase: 0.5%–2%.

Group R-1 / R-2 Residential

Smoke control, alarm integration, fire command coordination, garage ventilation coordination, and responder radio systems. Typical increase: 0.5%–2.5%.

Group R-3 Residential

Access roads, hydrant spacing, and fire flow requirements. Vertical construction impacts are generally minimal. Typical increase: 0%–1.5%.

Group S — Storage

High-piled storage requirements, rack sprinkler redesign, battery-powered equipment hazards, and automation protection. Typical increase: 1%–8%.

Group U — Utility / Miscellaneous

Minimal impacts generally limited to access and operational compliance.

WHEN COSTS ARE TRIGGERED (IFC)
• Occupancy Type → High hazard and institutional occupancies trigger significant life safety requirements • Building Size & Height → Larger and high-rise buildings require additional smoke control and responder systems • Hazardous Materials → Lithium-ion batteries and chemical storage significantly increase cost • Storage Systems → High-piled and automated warehousing increase suppression requirements • Emergency Communication → Responder radio systems and mass notification systems add cost • Operational Testing → Smoke control commissioning increases testing/documentation costs

Overall Conclusions: The highest IFC transition impacts are generally associated with Group H, large Group S logistics facilities, advanced manufacturing occupancies, and institutional occupancies.

Lowest IFC Transition Impacts: Small business occupancies, small mercantile spaces, urban R-3 residential projects, and utility structures generally experience minimal direct construction impact.

Contact: City of Flagstaff – Flagstaff Fire Department | 928-213-2508 | flagstaff.az.gov

Major Code Impacts 2018 to 2024 IFC

Lithium-ion battery and ESS requirements

Major revisions affected:

- Battery energy storage systems
- Thermal runaway protection
- Fire detection
- Deflagration/explosion control
- Separation distances
- Ventilation
- Emergency operations planning

This is one of the biggest themes of the 2024 IFC.

Additive manufacturing (3D printing)

New sections regulated:

- Industrial and nonindustrial 3D printing
- Powder handling
- Ventilation
- Combustible dust hazards
- Hazardous materials

Emergency responder communication systems

ERRCS/ERCES requirements expanded:

- Better in-building radio coverage
- Performance requirements
- Broader communication technologies
- Reliability/testing enhancements

Upholstered furniture and mattress storage

Storage and manufacturing requirements were revised for:

- Fire protection
- Sprinkler criteria
- Commodity classification
-

Hazardous materials / control areas coordination

- Coordination between IFC and IBC control area provisions improved, especially regarding fire walls and MAQ separation concepts.

Electric vehicle infrastructure coordination

Expanded requirements tied to:

- EV charging
- Parking structures
- Hazard mitigation
- Electrical safety
- Fire department response planning

Enhanced hazardous materials provisions

Additional revisions addressed:

Emerging technologies .

- Flammable gas systems
- Energy systems integration
- Industrial process hazards

Carbon monoxide detection

- Expanded from R & E occupancies

The following provisions shall have the effect of either amending, adding to, or deleting from the International Wildland Urban Interface Code, 2024 Edition:

Add this to section 101.2 Scope: When determining which conditions constitute a distinct danger to life or property, the Code Official may be guided by industry standards, individual site conditions, hazard ratings, risk assessments, basal area calculations, and/or tree densities determined to be effective in identifying and mitigating fire danger and/or protecting property.

In coordination with the Community Development Department, the provisions of this code shall be applied to all future developments to make properties Fire Adapted prior to the application of resource protection standards found in the Land Development Code.

Amend 101.2.1 Appendices by adding:

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

APPENDIX A – General Requirements

Amend 101.3 Purpose to read: The purpose of this code is to establish minimum regulations for the safeguarding of life and for property protection.

Regulations in this code are intended to mitigate the risk to life and structures from intrusion of fire from wildland fire exposures and fire exposures from adjacent structures and to mitigate structure fires from spreading to wildland fuels. The extent of this regulation is intended to be tiered commensurate with the relative level of hazard present.

The unrestricted use of property in wildland-urban interface areas is a potential threat to life and property from fire, economic, and resulting environmental impacts. Safeguards to prevent the occurrence of fires and to provide adequate fire protection facilities to control the spread of fire in *wildland-urban interface areas* shall be in accordance with this code.

This code shall supplement the jurisdiction's building and fire codes, if such codes have been adopted, to provide for special regulations to mitigate the fire- and life-safety hazards of the *wildland-urban interface areas*.

Amend 106.4 Vegetation management plans to read: Where utilized by the permit applicant pursuant to Section 502 forest stewardship plans shall be prepared and shall be submitted to the *code official* for review and approval as part of the plans required for a permit.

Insert to SECTION 202—DEFINITIONS:

FIRE RESISTIVE VEGETATION is those plants that burn at a relatively low intensity, slow rates of spread, and with short flame lengths. Characteristics include:

1. Growth with little or no accumulation of dead vegetation (either on the ground or standing upright)
2. Non-resinous plants (ex: flowers or aspen trees)
3. Low volume of total vegetation (ex: grass vs. brush)
4. Plants with high live fuel moisture (large amount of water in relation to their dry weight)
5. Drought tolerant plants
6. Stands without ladder fuels (plants without small, fine branches and limbs or adjacent shorter plants that create a ready-avenue for fire to move upward from the ground to the top of the vegetation)
7. Plants requiring little maintenance
8. Plants with woody stems and branches that require prolonged heating to ignite

FOREST MANAGEMENT PLAN is a comprehensive management plan that is applied to all lands within the city boundary, as well as any parcels or areas served by an emergency response/suppression contract.

FOREST STEWARDSHIP PLAN applies to subdivisions, multi-family residential, commercial, and industrial development both inside and outside the Resource Protection Overlay. It does not apply to individual hazard tree removal or individual single family residential parcels. Specific determination of need will be made by Staff.

- Forest Stewardship Plan must include both narrative and descriptive maps documenting how existing forest conditions will be modified to align with the desired conditions and tree density as stated in the Forest Management Plan.

- The Forest Stewardship Plan is in addition to the Flagstaff Zoning Code standards.

- If a parcel falls within the Resource Protection Overlay, a Forest Stewardship Plan must be reviewed and approved prior to the submittal of the Natural Resource Protection Plan that aligns with the Resource Protection Standards (10-50.90).

The Forest Stewardship Plan template is available on the Flagstaff Fire Department Wildland Fire Management website.

HAZARDOUS FUELS are weeds, grass, needles, straw, brush, trees, vines, wood chips, firewood, or other vegetation - living or dead - that a) if ignited, will present a risk to life or property, or b) if left in its current or natural state, will create an impediment to access, pose a threat to improvements, infrastructure, or public safety, or may cause a fire to ignite.

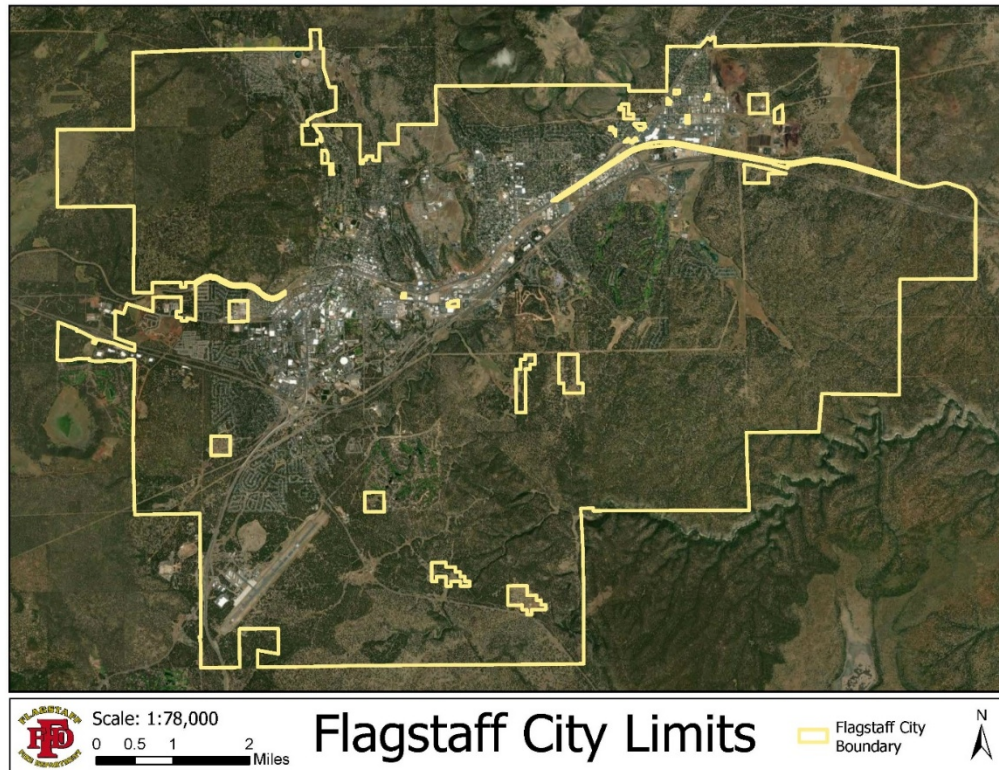
VEGETATION MANAGEMENT is a plan or operational activity, described below, that is undertaken by property owners at their own discretion or directed/approved by the Code Official designed or required to reduce wildfire threat, promote environmental sustainability, public welfare, and/or community well-being.

1. **Debris Disposal** - Removal of cut, dead, dying, and/or downed vegetation or other combustible materials, including flammable landscaping plants.
2. **Marking** - Designating trees or other vegetation, by location, paint, flagging, or other identification system, that are to be either removed or retained.
3. **Prescribed Fire** - The planned use of fire under specific environmental conditions to achieve forest management or community protection objectives. Used to reduce hazardous fuel levels, control unwanted vegetation, recycle nutrients, favor desired vegetation, and improve visibility and wildlife habitat.
4. **Selective Tree Thinning** - The periodic removal of individual trees or groups of trees to reduce threat of wildfire, improve individual tree vigor and forest health, or achieve other desired objectives.

Amend 301.1 Scope to read: The provisions of this chapter provide methodology to establish and record *wildland-urban interface areas* based on the findings of fact: high temperatures, low relative humidity, breezy/windy conditions, low fuel moistures, weather-related ignition potential, human-related ignition potential, historical fire data, natural fire adapted ecosystem, ember lofting and carrying potential, tree densities, crown closure, ladder fuels, surface fuels, and other fire risk factors.

Amend 302.3 Review of wildland-urban interface areas to read:

All land within the Flagstaff City Limits is considered Wildland Urban Interface.



Section 4 WILDLAND-URBAN INTERFACE AREA REQUIREMENTS

Delete: User notes:

About this chapter: Chapter 4 provides requirements that apply to all occupancies in the wildland-urban interface and pertain to all the following:

1. Fire service access to the property that is to be protected, including fire apparatus access roads and off-road driveways.
2. Premises identification.
3. Key boxes to provide ready access to properties secured by gated roadways or other impediments to rapid fire service access.
4. Fire protection water supplies, including adequate water sources, pumper apparatus drafting sites, fire hydrant systems and system reliability.
5. Fire department access to equipment such as fire suppression equipment and fire hydrants.
6. Fire protection plans.

Amend 402.2.2 Water supply to read: Individual structures hereafter constructed or relocated into or within *wildland-urban interface areas* shall be provided with a conforming water supply in accordance with Section 404.

Exceptions:

Buildings containing only private garages, carports, sheds and agricultural buildings with a floor area of not more than 600 square feet (56 m²).

Delete Section 5 and replace with:

SECTION 501—GENERAL

501.1 Scope. Buildings and structures shall be constructed in accordance with the *International Residential Code and International Building Code* and this code.

Exceptions:

1. Accessory structures not exceeding 120 square feet (11 m²) in floor area where located greater than or equal to 50 feet from buildings containing habitable spaces.
2. Agricultural buildings greater than or equal to 50 feet from buildings containing habitable spaces.

501.2 Objective. The objective of this chapter is to establish minimum standards to locate, design and construct buildings and structures or portions thereof for the protection of life and property, to resist damage from wildfires, and to mitigate building and structure fires from spreading to wildland fuels. The minimum standards set forth in this chapter vary with the critical *fire weather*, slope and fuel type to provide increased protection, above the requirements set forth in the *International Building Code*, from the various levels of hazards.

501.3 Fire-resistance-rated construction. Where this code requires 1-hour *fire-resistance-rated construction*, the fire-resistance rating of building elements, components or assemblies shall be determined in accordance with the test procedures set forth in ASTM E119 or UL 263.

Exceptions:

1. The fire-resistance rating of building elements, components or assemblies based on the prescriptive designs prescribed in Section 721 of the *International Building Code*.
2. The fire-resistance rating of building elements, components or assemblies based on the calculation procedures in accordance with Section 722 of the *International Building Code*.

SECTION 503 NON-COMBUSTIBLE CONSTRUCTION AND MATERIAL

503.1 General. Buildings and structures hereafter constructed, modified or relocated into the City of Flagstaff, shall meet the construction requirements in accordance with Section 503.2 and 504.

503.2.1 Noncombustible material. Material shall comply with the definition of *noncombustible* materials in Section 202.

SECTION 504 EXTERIOR CONSTRUCTION

504.2 Roof assembly. Roofs shall have a *roof assembly* that complies with a Class A rating when tested in accordance with ASTM E108 or UL 790. For *roof assemblies* where the profile allows a space between the *roof covering* and *roof deck*, the space at the eave ends shall be fire stopped to preclude entry of flames or embers or have one layer of 72-pound (32.4 kg) mineral-surfaced, nonperforated cap sheet complying with ASTM D3909 installed over the combustible *roof deck*.

Class A rated roof covering types include, but are not limited to:

- Cement shingles or sheets.
 - Exposed concrete slab roof.
 - Ferrous or copper shingles or sheets.
 - Slate shingles.
 - Clay or concrete roofing tile.
- o Where provided, barrel tile or corrugated roof coverings shall include noncombustible bird stops at the eave ends to prevent the entry of embers and debris.
- The use of wood shake, wood shingle, or any wood roof covering material regardless of test rating are not permitted.

504.2.1 Roof valleys. Where provided, valley flashings shall be not less than 0.019 inch (0.48 mm) (No. 26 galvanized sheet gage) corrosion-resistant metal installed

over a minimum 36-inch-wide (914 mm) underlayment consisting of one layer of 72-pound (32.4 kg) mineral-surfaced, nonperforated cap sheet complying with ASTM D3909 running the full length of the valley.

504.3 Protection of eaves. Eaves shall be enclosed or protected on the exposed underside using noncombustible materials.

504.4 Gutters and downspouts. Gutters and downspouts shall be constructed of *noncombustible* (metal) material. Gutters shall be covered with a noncombustible material to prevent the accumulation of leaves and debris in the gutter.

504.5 Exterior walls. Exterior walls of buildings or structures shall be constructed with:

1. *Approved noncombustible materials.* (e.g., metal, fibercement, masonry veneer, stucco, brick, concrete).
 - Where provided, all shutters (e.g., decorative and operable) shall be made of noncombustible material.
 - Note: Combustible wall cover material (e.g., wood shake, wood shingle, or any other wood siding material including ignition-resistant treatments and coatings) by construction or assembly are not permitted.
3. Heavy timber or *log wall construction may be permitted for projects based on Fire Code Official approval and Community Development review.*

504.5.1 Flashing. A minimum of 6 inches (152 mm) of metal flashing or noncombustible material applied vertically on the exterior of the wall shall be installed at the ground, decking and roof intersections where any non-combustible-gaps may occur.

504.6 Underfloor enclosure. Buildings or structures shall have underfloor areas enclosed to the ground with exterior walls in accordance with Section 504.5 with noncombustible corrosion-resistant mesh not to exceed 1/8-inch in diameter covering any openings.

Exception: Complete enclosure shall not be required where underfloor areas are elevated more than 4 feet above the ground. In such a case, columns and supporting walls must either be non-combustible or covered with non-combustible material.

504.7 Appendages, projections, attached patios, decks, and overhead structures (e.g., Covered Porches, Pergolas, Carports, and Gazebos). Unenclosed accessory structures attached to buildings with habitable spaces and projections, such as decks, shall be constructed in accordance with one of the following methods:

1. All the components including posts, joists, railings, stairs, and walking surfaces are constructed with noncombustible materials.
2. Deck walking surfaces constructed with a solid (no gaps), noncombustible material such as metal or light-weight concrete; railings within 5 feet of the home constructed of a noncombustible material, including where railings attach to the home; and deck posts with a minimum of 6 vertical inches of noncombustible material at grade.

Staircases 4 feet in width or less that attach to a deck and are open underneath, shall meet one of the following requirements:

- Open risers (no solid risers)
 - shall have a minimum of 6 vertical inches of the bottom of stairs made from noncombustible material.
 - Stair treads should be a solid (no gaps), noncombustible material, such as metal or light-weight concrete.
- Closed risers
 - shall have a minimum of 6 vertical inches of the bottom of stairs made from noncombustible material.
 - Stair treads and risers should be a solid (no gaps), noncombustible material, such as metal or light-weight concrete.
 - Staircases wider than 4 feet that attach to a deck, the staircase shall be cleared underneath and enclosed with a noncombustible corrosion-resistant mesh with openings not to exceed 1/8-inch in diameter and meet the following requirements:

3: Retrofits

- Deck Walking Surfaces shall be constructed with a solid, noncombustible material (e.g., metal or lightweight concrete) with no gaps.

- o Deck Railings within 5 feet of the home shall be constructed with noncombustible material, including where they attach to the home.
 - o Deck posts shall have a minimum of 6-inches of noncombustible material (e.g., metal flashing or fiber-cement board) applied vertically to the base.
 - o Stairs Attached to a Deck shall meet one the following requirements:
- Stairs Less than 4 Feet Wide and Open Underneath:
 - o A minimum of 6-inches of noncombustible material (e.g., metal flashing or fiber-cement) shall be applied vertically at the exterior base, measured from the ground at grade.
 - o Stair treads shall be a solid (no gaps) and made of noncombustible material (e.g., metal or lightweight concrete).
 - o Exception: If stairs are constructed with closed risers, they shall also be solid (no gaps) and made of noncombustible material.
- Stairs Wider Than 4 Feet:
 - o The area underneath shall be enclosed with noncombustible, corrosion-resistant mesh with openings not to exceed 1/8-inch in diameter.
 - o A minimum of 6-inches of noncombustible material (e.g., metal flashing or fiber-cement) shall be applied vertically at the exterior base, measured from the ground at grade.
 - o Stairs shall have closed risers. Stair treads and risers shall be a solid, and made of noncombustible material (e.g., metal or light-weight concrete) with no gaps.
- **Roof Covering** – Shall meet one of the following requirements:
 - o A solid roof covering material with a Class A rating when tested in accordance with ASTM E108 or UL 790, or
 - o Constructed of combustible slats (e.g., pergola) that cover no more than 15% of the total surface area.

- **Setback** – A detached combustible overhead structure (e.g., pergola and gazebo) on an attached deck shall be at least 10 feet from all exterior walls of the home.

- o *Exception:* An overhead structure constructed entirely of noncombustible materials is permitted with no setback requirement.

- **Posts** – exterior surface of the post must be non-combustible

- **Other** – Shall be free of any vegetation, curtains, drapes, and shade screens.

- o *Exception:* Shade screens that retract into noncombustible housing are permitted.

- **Carports and Garages** – Must have noncombustible wall covering material and the 0–5 Foot Noncombustible Zone under and around the structure.

- o An open carport with exposed combustible interior wall covering (e.g., wood), shall be enclosed.

- **6-inch Vertical Noncombustible Clearance** – Shall have noncombustible covering material for all posts, supporting walls, and stairs measured from the ground at grade.

- **Lattice and Mesh** – Must be noncombustible material (e.g., metal). Where noncombustible corrosion-resistant metal mesh is provided, the mesh shall be installed on the outside of the lattice.

- o *Exception:* An open outdoor living area under the deck shall meet the same requirements (see “Top of walking surfaces” above).

- Additionally, decks with a walking surface of 4 feet or less above the ground, shall be enclosed with the following:

- o When measured from the walking surface to the ground, the underdeck area with this height or less shall be enclosed with noncombustible, corrosion-resistant mesh. The mesh openings shall not exceed 1/8-inch in diameter and shall fully enclose the outer edge of the deck from the walking surface to the ground. This enclosure is required to reduce debris accumulation and limit ember intrusion beneath the deck.

Detached Decks and Overhead Structures (e.g., Covered Porches, Pergolas, Carports, and Gazebos) Where provided, detached decks and overhead structures within 10 feet of the home shall meet the same requirements as attached decks

504.7.1 Underfloor areas. Where the attached structure is located and constructed so that the structure or any portion thereof projects over a descending slope surface greater than 10 percent, the area below the structure shall have underfloor areas enclosed with exterior wall construction in accordance with Section 504.5.

504.8 Exterior glazing. *Exterior Glass (Windows, Skylights, and Glazed Openings within Doors)*

All exterior windows, skylights, and glazed openings within doors shall comply with one of the following requirements:

- Multipaned glass with at least two tempered panes.
- Glass with a minimum of 20-minutes fire-resistance rating when tested in accordance with NFPA 257.
- Glass blocks (windows only).
- Operable skylights shall be protected by a noncombustible mesh screen where mesh openings shall not exceed 1/8-inch in diameter
 - All retrofit/replacement windows must comply

504.9 Exterior doors. All exterior doors shall comply with one of the following requirements:

- Exterior doors shall be approved noncombustible construction, or solid-core wood not less than 1-3/4 inches thick (44 mm). The exterior doors shall be constructed with noncombustible threshold. Windows within doors and glazed doors shall be in accordance with this standard's exterior glass requirements (see 3.1.5 Exterior Glass).
- Exterior door assembly shall have a fire-resistance rating of not less than 20-minutes when tested according to NFPA 252.
- Doors made of combustible material (e.g. non-solid core wood doors) are permissible provided a noncombustible exterior storm door is installed as the outermost door.

504.10 Vents. Where provided, ventilation openings for enclosed attics, gable ends, ridge ends, under eaves and cornices, enclosed eave soffit spaces, enclosed rafter spaces formed where ceilings are applied directly to the underside of roof rafters, underfloor ventilation, foundations and crawl spaces, or any other opening

intended to permit ventilation, either in a horizontal or vertical surface, shall meet one of the following requirement options:

- **Performance-based Option** – Corrosion-resistant vents installed, conforming with the following ASTM E2886 test requirements for flame- and ember-resistance:

- o No flaming ignition of the cotton material during the Ember Intrusion Test.
- o No flaming ignition during the Integrity Test portion of the Flame Intrusion Test.
- o Temperature of the unexposed side of the vent does not exceed 662°F.
- o *Note:* Joints around such vents shall be sealed with sealants in accordance with vent manufacturer installation instructions to avoid ember and flame intrusion through the joints.

- **Prescriptive Option** – Vents shall be covered with a noncombustible, corrosion-resistant mesh with openings not to exceed 1/8-inch in diameter for ember-resistance.

- o *Exceptions:*

- o Forced air vents (e.g., dryer and central vacuum) shall have a functional louver or flap made of non-combustible material in lieu of mesh.
 - o Plumbing vents are excluded from this requirement.

504.10.3 Vent locations. Attic ventilation openings shall not be located in soffits, in eave overhangs, between rafters at eaves or in other overhang areas. Gable-end and dormer vents shall be located not less than 10 feet (3048 mm) from lot lines. Underfloor ventilation openings shall be located as close to grade as practical.

504.11 Detached accessory dwelling units and accessory structures. All accessory structures with a footprint greater than or equal to 120 square feet shall fully comply with Section 5 Construction, unless more than 50 feet away from habitable spaces.

SECTION 507—REPLACEMENT OR REPAIR

507.1 General. The *roof covering and siding* on buildings or structures in existence prior to the adoption of this code that have 25 percent or more replaced in a 12-month period shall be replaced with new construction requirements specified in

accordance with Section 5. All *windows, eaves, vents, and exterior doors* on buildings or structures in existence prior to the adoption of this code must be replaced with new construction requirements specified in accordance with Section 5.

Additional information regarding eligibility, designation levels, requirements, process, and timing for the Insurance Institute for Business and Home Safety Wildfire Prepared Home program is available here: <https://wildfireprepared.org/>

Amend SECTION 602—AUTOMATIC SPRINKLER SYSTEMS to read: 602.1 General. Sprinkler systems must comply with ARS 9-807.

Amend 603.2 Fuel modification to read: Buildings or structures, shall comply with the 0-5 foot non-combustible info below, and with the City of Flagstaff Forest Management Plan, Landscaping Code and Resource Protection Standards.

Delete table 603.2

Insert 603.2.1 The 0–5 Foot Noncombustible Zone shall meet all the following requirements:

0–5 Foot Noncombustible Zone – Area within 5 Feet of the Home and Attachments

The first five feet surrounding the home and its attachments (e.g., decks, patios, overhead structures, stairs) is the **most critical area of defensible space**. This zone shall be established and maintained as noncombustible. The 0-5 Foot Noncombustible Zone is measured horizontally from the edge of the home's exterior walls and, if present, the outermost posts of a deck or overhead structure, extending outward to 5 feet (see Figure 2). This noncombustible area also extends vertically to the sky. The 0–5 Foot Noncombustible Zone shall meet all the following requirements:

• Vegetation –

o Shall remove all vegetation (e.g., grass, artificial turf, weeds, flowers, succulents, cacti, plants, shrubs, bushes, and vegetative debris) within 5 feet to bare mineral soil.

o Shall remove all trees, limbs, branches, and vines that are within and that overhang the 0–5 Foot Noncombustible Zone.

- **Groundcover –**

- o Shall remove all combustible groundcover materials (e.g., wood and rubber mulch and exposed weed cloth) within 5 feet to bare mineral soil.

- **Note:** Noncombustible hardscape materials (e.g., gravel, pavers, river rocks, decomposed granite, steppingstones, and concrete) are permitted.

- **Fencing and Retaining Walls –**

- o Shall remove combustible fencing materials (e.g., wood and vinyl), posts, gates, and retaining walls within 5 feet or replace with noncombustible material.

Parallel Fences within 5 to 30 feet

Back-to-back (parallel) combustible fencing (meaning separate fences that are combustible and closer than 5 feet apart) are not permitted.

- *Exception:* If one or both back-to-back (parallel) fences are constructed with noncombustible materials (e.g., concrete or metal).

- *Note:* Meeting this requirement may necessitate coordination with neighbors or an HOA to eliminate at least one of the combustible parallel fences.

Refer to City of Flagstaff Forest Management Plan and Landscaping Code for Tree and Shrub Spacing outside of the 0-5 foot zone.

Insert 603.2.2 Trees. Tree stems and canopies are allowed outside of the 0-5 foot zone, provided that they meet City of Flagstaff Forest Management Plan and Landscaping Code.

Other Requirements

- o Tree limbs may not extend into the vertical plane of a chimney outlet
 - o Tree limbs shall not touch roof coverings at any time
 - o Hazard trees, as determined by the Code Official, shall be removed. When determining hazard trees, the Code Official may be guided by industry standards, individual site conditions, hazard ratings, risk assessments, basal area calculations, and/or tree densities determined to be effective in identifying and mitigating fire danger and/or protecting property. Trees that are in such a position fall and endangering life or property are determined to be hazard trees.

Amend 603.2.3 Ground cover to read: Deadwood and litter shall be regularly removed from trees. Needles and/or duff layer shall not exceed 3 inches in depth.

Delete 604.4, 604.4.1, 604.4.2

Amend A104.4 Smoking to read: Where required by the *code official*, signs shall be posted stating NO SMOKING. Persons shall not smoke within 15 feet (4572 mm) of combustible materials or nonfire-resistive vegetation.

Smoking and use of electronic cigarettes is always prohibited in all public places within the City of Flagstaff.

Amend A104.5 Equipment and devices generating heat, sparks or open flames to read: Equipment and devices generating heat, sparks or open flames capable of igniting nearby combustibles may be prohibited in the wildland urban interface by the Code Official during periods of very high or greater fire danger as determined by the Coconino National Forest

Amend A104.6 Fireworks to read: The sale or use of consumer-grade fireworks within the City of Flagstaff may be prohibited based on fire restrictions

Amend A104.7.1 General. No person shall build, ignite, or maintain any outdoor fire of any kind for any purpose within the City of Flagstaff, except by the authority of a written permit from the Fire Department.

Exception: Outdoor fires within inhabited premises or designated campsites where such fires are in a permanent barbecue, portable barbecue, outdoor fireplace, incinerator or grill, or any other outdoor fire appliance for such purposes, and are not less than 15 feet (9144 mm) from any combustible material or nonfire-resistive vegetation.

Amend A107.4 Trees. Portions of trees that extend to within 30 feet (9144 mm) of combustible portions of water storage and pumping facilities shall be removed unless approved by the Code Official.

City of Flagstaff – Flagstaff Fire Department

2024 IWUIC Significant Changes & Cost Impacts (Condensed Summary)

2024 IWUIC changes focus on transitioning from ignition-resistant construction toward noncombustible construction materials. Cost impacts below are estimated based on a typical 1,800 square foot single-family residence.

Code Change	Impact / Cost
Exterior Walls	Noncombustible siding estimated material and install cost increase: < \$2500 for 1,800 sq ft home.
Eaves / Soffits	Noncombustible boxed eaves and soffit material and install cost increase: < \$1,680 depending on material selection.
Covered Gutters	Gutter cover requirement estimated increase: ~\$500.
0–5 Foot Noncombustible Zone	Transition from grass/mulch/wood fencing to noncombustible ground cover/metal fencing estimated increase: ~\$2,500.
Windows	No major change. Current Code requires minimum 20-minute fire-resistance-rated glazing per NFPA 257 (IR2).
Roof Assemblies	No major change. Current code requires Class A roof assembly (IR2).
Doors	No major change. Current code requires noncombustible or solid-core wood doors (IR2).
Gutters	No major change. Current code requires noncombustible metal gutters (IR2).
Vents	No major Change: Current code requires 1/8" screening required (IR2).
Decks	Not a requirement for construction, although transition to noncombustible deck materials may increase costs depending on design.
Total Cost	<\$7,180

Total Project Impact: Research indicates requiring noncombustible materials typically increases total construction costs by approximately 1-2% for a typical 1,800 sq ft residence.

- Noncombustible Hardie Board siding comes with 30 year full coverage warranty
- Combustible LP SmartSide comes with a 5 year full coverage warranty

Long-Term Value: Noncombustible materials generally last longer, require less maintenance, may reduce insurance premiums, and improve wildfire survivability.

Avoided Costs: Research indicates every \$1 invested in wildfire-resistant construction may save approximately \$210 in avoided future wildfire losses.

IBHS Wildfire Prepared Home: Voluntary wildfire mitigation certification program is now available to Arizona residents. Recent

evidence from New Mexico shows insurance premium savings of 15%-18% for Wildfire Prepared Home certificates.