

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.

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