

ROOF HATCHES			
Condition	Requirement	Source Section	Solution/Note
Guard near roof edge	Provide guards when hatch is within 10 ft of edge >30 in above lower level; guard extends ≥30 in beyond hatch ends; openings ≤21 in sphere	IBC §1015.7	Use curb-mounted safety railing kits sized to hatch; 42 in height; no membrane penetrations
Hatch opening for roof access	Clear opening ≥16 sq ft with minimum dimension ≥24 in (where access via hatch/trap door applies)	IBC §1011.12.2	Select 48×48, 32×72, 30×78, etc.; coordinate firefighter access/standpipe requirements
Stair/ship-ladder headroom	Minimum headroom 80 in over stair	IBC §1011.3; OSHA 1910.25(b)(2)	Confirm hatch length for stair pitch; ensure clearance
Fixed ladder clearances	Fixed ladder: clear rung width ≥16 in; rung spacing 10–14 in; typical back clearance ≥7 in; climbing-side clearance ~30 in to hinged side	OSHA 1910.23	Coordinate ladder placement and hatch orientation
SMOKE VENTS			
Condition	Requirement	Source Section	Solution/Note
Occupancy trigger	Group F-1 or S-1 >50,000 sq ft undivided area: provide smoke & heat vents or mechanical smoke removal	IBC §910.2.1 / §910.4	Use UL 793-listed SafeMAX™/ThermalMAX™/LightMAX™/AcousticMAX™
High-piled combustible storage	IFC Table 3206.2 requires smoke/heat removal with specifics for sprinklered/unsprinklered	IBC §910.2.2 (via IFC)	Coordinate NFPA 204 design and sprinkler interaction
Product listing	Automatically operated roof vents shall be listed to UL 793	IBC §910.3; UL 793	BD smoke vents are UL 793 listed; include fusible link and manual pulls
Design method	Size vents, air inlets, draft curtains via NFPA 204 hand calcs or LAVENT	NFPA 204 (2024)	Provide design calcs and maintenance plan; snow/wind performance in submittal
FALL PROTECTION			
Condition	Requirement	Source Section	Solution/Note
Unprotected sides/edges ≥4 ft	Protect via guardrails, safety nets, or personal fall protection systems	OSHA 1910.28(b)(1)	Preferred: guardrails or travel restraint to keep workers away from edge
Low-slope roof <6 ft from edge	Guardrail/net/restraint/fall arrest required	OSHA 1910.28(b)(13)(i)	Use portable/perimeter guardrails or PFAS
Low-slope roof 6–15 ft from edge	Same protections; designated areas only if work is infrequent & temporary	OSHA 1910.28(b)(13)(ii)	Document frequency/temporariness if using designated areas
Guardrail geometry & strength	Top rail 42 in ±3 in; openings ≤19 in; 200 lb top rail; 150 lb midrail; deflection ≥39 in	OSHA 1910.29(b)	Verify kit data sheets; field installation per manufacturer
Managed program & equipment	Establish program; select equipment per Z359 series (harness, connectors, SRDs, anchorage, rescue)	ANSI/ASSP Z359.1 (2024)	Include training & rescue planning in submittals
CHECKLIST			
1. Hatch within 10 ft of edge? If yes, guard per IBC §1015.7 provided (21-in sphere).		6. Smoke Vent UL 793 listing documented; fusible link temp; snow/wind opening; manual release.	
2. Hatch opening ≥16 sq ft and min dimension ≥24 in where required.		7. Fall protection plan per OSHA 1910.28 and Z359.1; guardrail data per 1910.29.	
3. Hatch Headroom ≥80 in over stair/ship ladder.		8. Atrium smoke control (if applicable) per IBC §909/NFPA 92/101.	
4. Ladder clearances (width, spacing, back clearance, climb-side) per OSHA 1910.23.		9. FM guidance considered (hail protection, HVAC interaction).	
5. Smoke Vent triggers (F-1/S-1 area; high-piled storage) verified.		10. Inspection/maintenance program & training records on file.	
CODES & EDITIONS			
Topic	Latest Edition	Primary Sections	Notes
IBC (Model Building Code)	2024	§1015.7; §1011.12.2; §910	Verify local adoption/amendments with AHJ
NFPA 204 (Smoke & Heat Venting)	2024	Ch. 4–13	Hand calcs & LAVENT modeling; inspection & maintenance
OSHA 29 CFR 1910 Subpart D	Updated through Oct 31, 2025	1910.28; 1910.29; 1910.23	General industry rooftop fall protection & ladders
ANSI/ASSP Z359.1 (Fall Protection Code)	2024	Z359.1 with linked equipment standards	Managed program, equipment selection, rescue planning