

Fire Alarm Decision Tree Companion Guide

This companion sheet explains each branch of the Fire Alarm Decision Tree. Use it alongside the visual chart to understand the code references and reasoning.

Group A (Assembly)

- Code Ref: IBC §907.2.1 • Trigger: Manual fire alarm system required when occupant load (OL) ≥ 300 .
- If OL $\geq 1,000$ → Emergency Voice/Alarm Communication (EVACS) required (§907.5.2.2). • OL is calculated using IBC Table 1004.5 (e.g., Assembly with chairs = 7 net ft²/person).

Group B (Business)

- Code Ref: IBC §907.2.2 • Trigger: Manual fire alarm required when combined occupant load ≥ 500 , OR >100 occupants are above or below the level of exit discharge. • Exception: If fully sprinklered and monitored, pull stations may be reduced to one at an approved location. • Ambulatory care facilities within Group B have their own subsection (§907.2.2.1).

Group E (Educational)

- Code Ref: IBC §907.2.3 • Trigger: Manual fire alarm system required when OL > 50 (applies to K-12 schools). • Exceptions: Some small single-classroom buildings may be exempt. • Notification must meet §907.5 (audible/visible alarms per NFPA 72).

Group R-2 (Residential Apartments)

- Code Ref: IBC §907.2.9 • Trigger: Fire alarm required when: – Any dwelling unit is ≥ 3 stories above the lowest level of exit discharge, OR – Any unit is >1 story below that level, OR – Building contains >16 dwelling units. • Exception: If units open directly to exterior with open-ended corridors and are sprinklered, alarm may not be required.

Group M (Mercantile)

- Code Ref: IBC §907.2.7 • Trigger: Manual fire alarm required when combined occupant load ≥ 500 , OR >100 occupants are above/below exit discharge. • Exception: Same as Group B—pull station reduction when sprinklered + monitored.

Special Features

- High-Rise Buildings (§403 → §907.2.13): Automatic smoke detection + EVACS + firefighter phones. • Atriums (§404 → §907.2.14): Smoke detection in atrium spaces required. • Covered Malls (§402 → §907.2.20): EVACS system required throughout mall. • Underground Buildings (§405 → §907.2.18): Detection per smoke control strategy. • Special Amusement (§907.2.12): Automatic detection, special occupant notification.

Monitoring Requirement

• Code Ref: IBC/IFC §907.6.6 • Any fire alarm system required by the code must be monitored by an approved supervising station. • Exceptions: Some small occupancies may not require off-site monitoring (check local AHJ).