

FIRE & SMOKE PROTECTION

HEAT DETECTOR SPACING REDUCTION

(Based on 2019 NFPA 72 Table 17.6.3.5.1)

Ceiling Height Greater than (>)		Up to and Including		Multiply Listed Spacing
ft.	m	ft.	m	
0	0	10	3.0	1.00
10	3.0	12	3.7	0.91
12	3.7	14	4.3	0.84
14	4.3	16	4.9	0.77
16	4.9	18	5.5	0.71
18	5.5	20	6.1	0.64
20	6.1	22	6.7	0.58
22	6.7	24	7.3	0.52
24	7.3	26	7.9	0.46
26	7.9	28	8.5	0.40
28	8.5	30	9.1	0.34

FIRE WALL FIRE RESISTANCE RATING

(Based on IBC Table 706.4)

Group	Fire-Resistance Rating (hours)
A, B, E, H-4, I, R-1, R-2, U	3
F-1, H-3, H-5, M, S-1	3
H-1, H-2	4
F-2, S-2, R-3, R-4	2

FIRE RESISTANCE RATING FOR BARRIERS BETWEEN FIRE AREAS

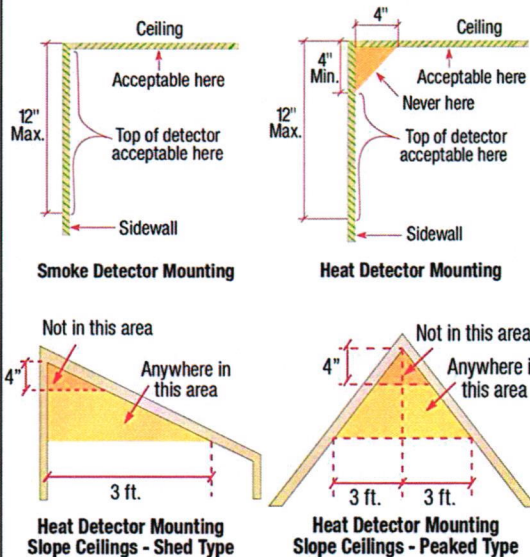
(Based on IBC Table 707.3.10)

Occupancy Group	Fire-Resistance Rating (hours)
H-1, H-2	4
F-1, H-3, S-1	3
A, B, E, F-2, H-4, H-5, I, M, R, S-2	2
U	1

FIRE WALLS (Based on IBC 706)

- Extent and location of fire walls must provide a complete separation.
- Fire walls must be of any approved noncombustible materials.
- Fire-resistance rating of fire walls must comply with Table 706.4.
- Fire walls must be continuous from exterior wall to exterior wall and must extend 18" Min. beyond the exterior surface of exterior walls.
- Fire walls must extend to the outer edge of horizontal projecting elements such as balconies, roof overhangs, canopies, marquees and similar projections that are within 4 ft. of the fire wall.
- Fire walls must extend from the foundation to a termination point 30" Min. above both adjacent roofs.

SMOKE & HEAT DETECTOR LOCATION



SMOKE-SENSING FIRE DETECTORS

(Based on 2019 NFPA 72 17.7.3.1)

- The location and spacing of smoke detectors must be based on the anticipated smoke flows due to the plume and ceiling jet produced by the anticipated fire and any pre-existing ambient airflows that could exist in the protected compartment.
- Spot-type smoke detectors must be located on the ceiling or, if on a sidewall, between the ceiling and 12" down from the ceiling to the top of the detector.
- In absence of specific-performance based design criteria, one of the following requirements must apply:
 - Distance between smoke detectors must not exceed a spacing of 30 ft. and there must be detectors within a distance of one-half the nominal spacing, measured at right angles from all walls or partitions extending upward to within the top 15% of the ceiling height.
 - All points on the ceiling must have a detector within a distance equal to or less than 0.7 times the 30 ft. spacing.
- In all cases, always follow the manufacturer's instructions.

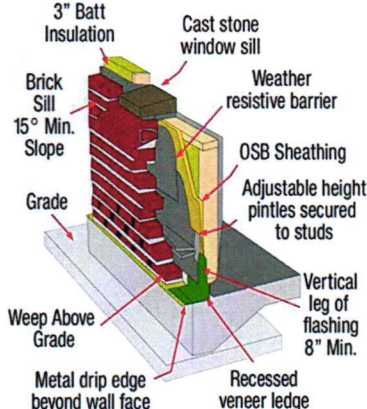
HEAT-SENSING FIRE DETECTORS

(Based on 2019 NFPA 72 17.6.3.1.3 - 17.6.3.5.1)

- Spot-type heat-sensing fire detectors must be located on the ceiling a min. of 4" from the sidewall or on the sidewalls between 4" and 12" from the ceiling.
- Line-type heat detectors must be located on the ceiling or on the sidewalls a max. of 20" from the ceiling.
- Solid Joist Construction. Detectors must be mounted at the bottom of the joists.
- Beam Construction. Where beams are less than 12" in depth and less than 8 ft. on center, detectors are permitted to be installed on the bottom of beams.
- Sloping Ceilings (Peaked & Shed). A row of detectors must first be located at or within 36" of the peak of the ceiling.
- High Ceilings. On ceilings 10 to 30 ft. high, heat detector spacing must be reduced, see Table 17.6.3.5.1, prior to any additional reductions for beams, joists or slope.

EXTERIOR WALL COVERINGS

MASONRY VENEER



MASONRY (Based on IBC 1404.4.2)

- Flashing and weep holes in anchored veneer must be located not more than 10" above finished ground level above the foundation wall or slab.
- At other points of support including structural floors, shelf angles and lintels, flashing and weep holes must be located in the first course of masonry above the support.

ADHERED MASONRY VENEER

(Based on IBC 1404.10)

- On exterior stud walls, adhered masonry veneer must be installed 4" Min. above the earth, or 2" Min. above paved areas, or 1/2" Min. above exterior walking surfaces supported by the same foundation that supports the exterior wall.
- Masonry veneer units must be adhered to the mortar scratch coat with 1/2" Min. thick setting bed of mortar to create a full setting bed for the back of the masonry veneer units.
- The masonry veneer units must be worked into the setting bed resulting in a nominal 3/8" setting bed after the masonry veneer units are applied.
- Exterior adhered masonry veneer installed with lath and mortar:
 - A nominal 1/2-inch-thick layer of mortar must be applied, encapsulating the lathing.
 - The surface of this mortar must be scored horizontally, resulting in a scratch coat.

WOOD VENEERS (Based on IBC 1404.5)

- Wood veneers on exterior walls of buildings of Type I, II, III and IV construction must be 1" min. thick, 0.438-inch exterior hardboard siding or 0.375-inch exterior-type wood structural panels or particleboard and must conform to the following:
1. The veneer must not exceed 40 ft. in height above grade or 60 ft. where fire-retardant-treated wood is used.
 2. The veneer is attached to or furled from a noncombustible backing that is fire-resistance rated.
 3. Where open or spaced wood veneers are used, they must not project more than 24" from the building wall.

EXTERIOR WALL POCKETS (Based on IBC 1404.4.1)

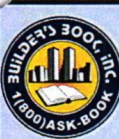
In exterior walls of buildings or structures, wall pockets or crevices in which moisture can accumulate must be avoided or protected with caps or drips, or other approved means must be provided to prevent water damage.

FLASHING (Based on IBC 1404.4)

- Flashing must be installed to prevent moisture from entering the wall or to redirect that moisture to the exterior.
- Flashing must be installed at:
 - the perimeters of exterior door and window assemblies
 - penetrations and terminations of exterior wall assemblies
 - exterior wall intersections with roofs, chimneys, porches, decks, balconies and similar projections
 - built-in gutters & similar locations
- Flashing with projecting flanges must be installed on both sides and the ends of copings, under sills and continuously above projecting trim.
- Self-adhered membranes used as flashings of fenestration in wall assemblies must comply with AAMA 711.
- Fluid applied membranes used as flashing for exterior wall openings must comply with AAMA 714.

STONE VENEER (Based on IBC 1404.7)

Anchored stone veneer units not exceeding 10" in thickness must be anchored directly to masonry, concrete or to stud construction by one of the approved methods listed in this code.



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