IBC Building Types

Much like the old UBC (Uniform Building Code), the IBC (International Building Code) classifies buildings and structures "erected or to be erected, altered or extended in height," into five construction types. However, the IBC has attempted to "simplify" the definitions by deferring to material test performances. The building must meet the minumum requirements of the building type based on the fire-resistive capabilities of the primary materials used. Buildings can have portions exceed minimum requirements and not affect its type. Types are still categorized in Roman numerals.

Each type of construction (except for type IV) is broken down into subtypes (e.g. Type I-A or Type I-B) or fire-resistance ratings within the type. Three sets of variables will govern the analysis of the building: intended occupancy, height and building area. For example, the higher occupancy rating of a building will require additional active and/or passive fire suppression systems in relation to another building with lower occupancy demands. The primary difference between these subcategories is the hourly fire-resistance ratings for structural frames and bearing walls listed in next column.

TYPE I & II:

The main elements or systems of construction are labeled "noncombustible: meet the test criteria prescribed in the ASTM Standard E 136." Examples of these materials would be masonry, concrete and steel. Combustible materials within the systems of the building are permitted under section 603 of the IBC, such as thermal insulation or interior floor finishes.

To simplify, primary subtype differences are for structural frame and bearing wall fire ratings:

Hourly Fire-Resistance Ratings

- I-A: 3 hours
- I-B: 2 hours
- II-A: 1 hour
- II-B: no hourly rating required

Types III, IV and V are considered "combustible." Although there is no definition in the IBC for "combustible construction," main elements of construction are allowed in varying degrees to be combustible or not complying with ASTM E 136.

TYPE III:

A combination of systems usually comprised of "exterior walls of noncombustible materials and the interior building elements are of any material permitted by the IBC." Fire-retardant-treated wood is acceptable in exterior walls that comply with section 2303.2 of the IBC with at least a 2-hour fire rating. Subtypes with varying degrees of hourly fire-ratings are listed in Table 601 of the IBC. *(continued on back)*

TYPE IV:

Known as heavy timber or mill construction "in which the exterior walls are of noncombustible materials." Interior building elements utilize wood structural members and heavy wood decking. Building elements do not contain "concealed" spaces and contain systems that prevent a fire from the exterior into unprotected openings.

TYPE V:

The least restrictive construction type permits exterior and interior walls to be comprised of any materials permitted by the IBC. A typical example of this building type is a wood-framed single family residence.

- Type V-A: "Protected construction," all major building elements must have at least a 1-hour fire-resistance rating. Exception: non-load bearing interior walls and partitions have no rating.
- Type V-B: No fire-resistance ratings are required except for exterior "fire separation distance" listed in Table 602 of the IBC.

Please note: This page is intended as a summary, refer to Chapter 6 of the IBC for more concise information. Always check with local building departments that can make changes or alterations to building type classifications within their jurisdiction.

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Table 601 of the IBC – Fire-resistance Rating Requirements for Building Elements (hours)

BUILDING ELEMENT	TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
	A	B	A[e]	B	A[e]	B	HT	A[e]	B
Structural frame[a]	3[b]	2[b]	1	0	1	0	HT	1	0
Bearing walls Exterior[g] Interior	 3 3[b]	 2 2[b]	 1 1	 0 0	 2 1	 2 0	 2 1/HT	 1 1	 0 0
Nonbearing walls and partitions Exterior	See Table 602 of the IBC								
Nonbearing walls and partitions Interior[f]	0	0	0	0	0	0	See Section 602.4.6 of the IBC	0	0
Floor construction Including supporting beams and joists	2	2	1	0	1	0	HT	1	0
Roof construction Including supporting beams and joists	$1^1/_2$[c]	1[c, d]	1[c, d]	0[c, d]	1[c, d]	0[c, d]	HT	1[c, d]	0

For SI: 1 foot=304.8 mm.

a. The structural frame shall be considered to be the columns and the girders, beams, trusses and spandrels having direct connections to the columns and bracing members designed to carry gravity loads. The members of floor or roof panels which have no connection to the columns shall be considered secondary members and not part of the structural frame.

b. Roof supports: Fire-resistance ratings of structural frame and bearing walls are permitted to be reduced by 1 hour where supporting a roof only.

c. Except in Group F-1, H, M and S-1 occupancies, fire protection of structural members shall not be required, including protection of roof framing and decking where every part of the roof construction is 20 feet or more above any floor immediately below. Fire-retardant-treated wood members shall be allowed to be used for such unprotected members.

d. In all occupancies, heavy timber shall be allowed where a 1-hour or less fire-resistance rating is required.

e. An approved automatic sprinkler system in accordance with Section 903.3.1.1 of the IBC shall be allowed to be substituted for 1-hour fire-resistance-rated construction, provided such system is not otherwise required by other provisions of the code or used for an allowable area increase in accordance with Section 506.3 of the IBC or an allowable height increase in accordance with Section 504.2 of the IBC. The 1-hour substitution for the fire-resistance of exterior walls shall not be permitted.

f. Not less than the fire-resistance rating required by other sections of this code.

g. Not less than the fire-resistance rating based on fire separation distance (see Table 602 of the IBC).