


RESIDENTIAL CONSTRUCTION ENVELOPE
Quick-Card® A Critical Path Reference Guide



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RESIDENTIAL BUILDINGS

Single-Family Dwellings

Most single-family houses are classified by the IRC as Group R-3 occupancies built with Type V one-hour construction. The means that approved light framed, insulated structures have a one-hour fire resistance rating. The structure rating is obtained by using exterior sheathing panels and exterior gypsum or Gypsum concrete masonry to alter and protect the wood framing in the structure.

Residential buildings classified as Type V-R construction are buildings of combustible construction. These have no fire protection rating. A parapet gable, chimney or other attached, with wall and roof framing supported on the inside in a Type V-R construction.

Most building departments provide sheets that describe the minimum construction requirements for one-story houses regarding fire resistance, framing, and foundations.

Townhouses

Townhouses are usually rows of single-family homes joined by common exterior side walls. One such building with multiple units has a fire rating is given over a double-car garage. Townhouse buildings are classified by the IRC as Group R-3 occupancies and are normally built with Type V one-hour construction.

Condominium and Apartment Buildings

Condominiums and apartments are multi-family residential buildings of similar construction but with a different type of ownership. A separate entry exists each dwelling unit in a condominium, while all dwelling units in an apartment building are owned by a single entity. The IRC classifies such types of buildings as Group R-2 occupancies.

The code requires exterior wall joints to be reliably constructed. Since sound travels best through solid objects, the studs between living units should be separated. You can do this by installing two parallel rows of studs or by staggering the studs. That ensures that the studs of adjacent dwelling units are separated by at least one stud, which helps block sound transmission.

A separation wall has two rows of studs with a 1- or 2-inch air gap, and requires the joints and rafters of its respective unit. Buildings up to three stories high may be built Type V one-hour construction, but buildings over three stories must have an incombustible frame such as steel, concrete, masonry, or a combination of these materials.

FRAMING PROCEDURE

The framing contractor is responsible for installing and bracing the building frame in accordance with the Approved Plans and the Building Code. Here are some guidelines to help the framer:

- Always refer to the structural plans to determine the proper location of wood members.
- Coordinate the architectural plans for dimensions and the framing plans for the sizes and locations of the framing members.
- Don't install a damaged or inferior framing member.
- Never alter any prebraced structural member without the written approval of the designer.
- Allow the fabricator to build members only after the designer and the general contractor has approved shop drawings.
- Never stack heavy construction material on the frame until it's properly braced.
- Store construction material in small stacks over bearing walls and never off enduses of joists or rafters.
- Avoid prolonged concentrated loads by distributing materials over end or floor as soon as possible.
- Frame all members with square, tight joints that are properly connected with nails or bolts.
- Install all horizontal members subject to bending with the crown edge up.
- Don't splice horizontal members subject to bending between supports.
- Install all members so they rest on supports without being pinned.
- Make sure board bases are parallel and flush with finish work such as drywall and sheathing.
- Whenever possible, avoid cutting or boring pressure-treated timbers.
- Coat all cuts and borings with an approved sealant.
- Consider wood shrinkage before you make a cut or bore holes.

TYPES OF CONSTRUCTION

RFD - RESISTED (RATED) BY FRAME

BUILDING HEIGHT	ONE-STORY		TWO-STORY		THREE-STORY		FOUR-STORY	
	1	2	1	2	1	2	1	2
1. Bearing wall (concrete)	1	2	1	2	1	2	1	2
2. Bearing wall (brick)	2	2	1	2	1	2	1	2
3. Bearing wall (stone)	2	2	1	2	1	2	1	2
4. Bearing wall (masonry)	2	2	1	2	1	2	1	2
5. Bearing wall (steel)	2	2	1	2	1	2	1	2
6. Bearing wall (concrete)	2	2	1	2	1	2	1	2
7. Bearing wall (brick)	2	2	1	2	1	2	1	2
8. Bearing wall (stone)	2	2	1	2	1	2	1	2
9. Bearing wall (masonry)	2	2	1	2	1	2	1	2
10. Bearing wall (steel)	2	2	1	2	1	2	1	2

ONE-STORY BUILDINGS

Both Allowable Building Heights/Both Allowable Floor Areas

TYPE OF CONSTRUCTION	ONE-STORY		TWO-STORY		THREE-STORY		FOUR-STORY	
	1	2	1	2	1	2	1	2
1. Bearing wall (concrete)	10	10	10	10	10	10	10	10
2. Bearing wall (brick)	10	10	10	10	10	10	10	10
3. Bearing wall (stone)	10	10	10	10	10	10	10	10
4. Bearing wall (masonry)	10	10	10	10	10	10	10	10
5. Bearing wall (steel)	10	10	10	10	10	10	10	10
6. Bearing wall (concrete)	10	10	10	10	10	10	10	10
7. Bearing wall (brick)	10	10	10	10	10	10	10	10
8. Bearing wall (stone)	10	10	10	10	10	10	10	10
9. Bearing wall (masonry)	10	10	10	10	10	10	10	10
10. Bearing wall (steel)	10	10	10	10	10	10	10	10

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