

PART



# Site Development

## Chapter 3: Site Preparation



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## Site Preparation



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**I**n preparation for constructing buildings on a property, the builder must consider a number of factors related to code requirements. The buildings must be located according to the approved site plan to meet the requirements of the *International Residential Code* (IRC) and any applicable local ordinances. The soil must be suitable for the support of the building and is factored into the design of the foundations. And the building must be elevated sufficiently and the site graded to provide surface drainage away from the building. The plans examiner considers these factors when checking the construction drawings and site plan, but the inspector will be responsible for verifying the requirements at the jobsite (Figure 3-1).



FIGURE 3-1 Sitework

## LOCATION ON PROPERTY

The IRC regulates a building’s location on the property primarily to guard against the spread of fire. The code is concerned with not only protecting the new building on the property being developed, but preventing the spread of fire to buildings on the adjacent property. Structural considerations also play a part in locating buildings on a lot. The code regulates distances between the structure and adjacent steep slopes to protect the integrity of the foundation. Local zoning or other ordinances may be more restrictive in regulating the location, height, and area of buildings on properties.

### Fire separation distance

By definition, fire separation distance is measured from the face of the building to the lot line, centerline of a street or alley, or to an imaginary line between two buildings. However, for all practical purposes, fire separation distance typically will be of concern only when measured to the lot line. No separation distance or fire resistance rating is required for opposing walls of detached dwellings and accessory structures on the same lot. Fire separation distance is measured at a right angle to the face of the exterior wall. [Ref. R202]

### Separation distance from lot line

Provisions that regulate the construction of exterior walls in proximity to lot lines have long been recognized as effective in preventing the spread of fire from a building on one property to a building on another property. Protection can be achieved by providing a clear space between the building and lot line or by using fire-resistant-rated construction. The code does not prohibit placing a building with zero clearance to the lot line provided the exterior wall meets the prescribed fire resistance requirements. When the building is set a certain distance away from the lot line, fire resistance is not required. For dwellings and townhouses

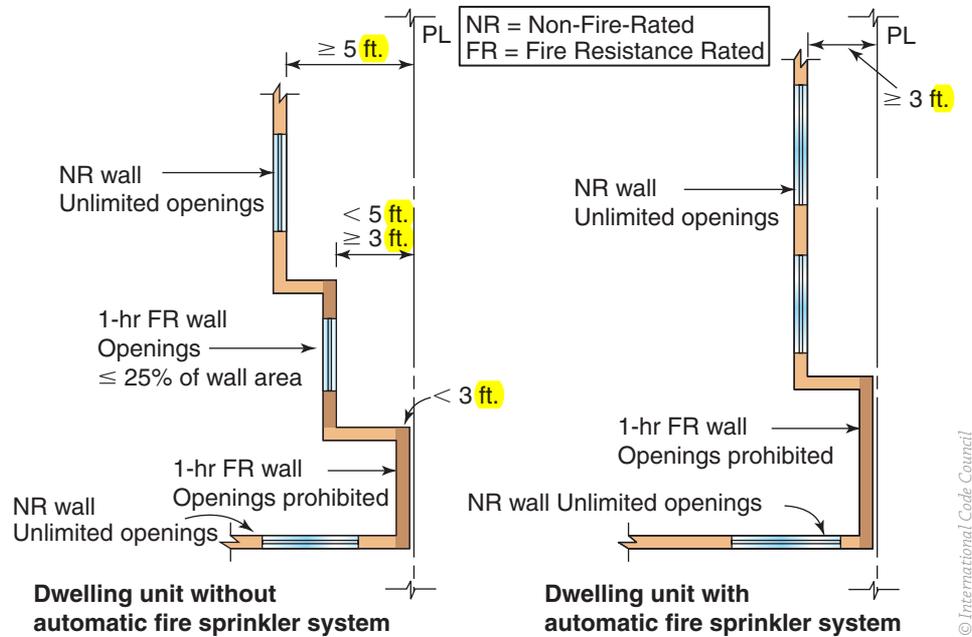
### Code Basics

**Exterior walls perpendicular to the wall facing the property line:**

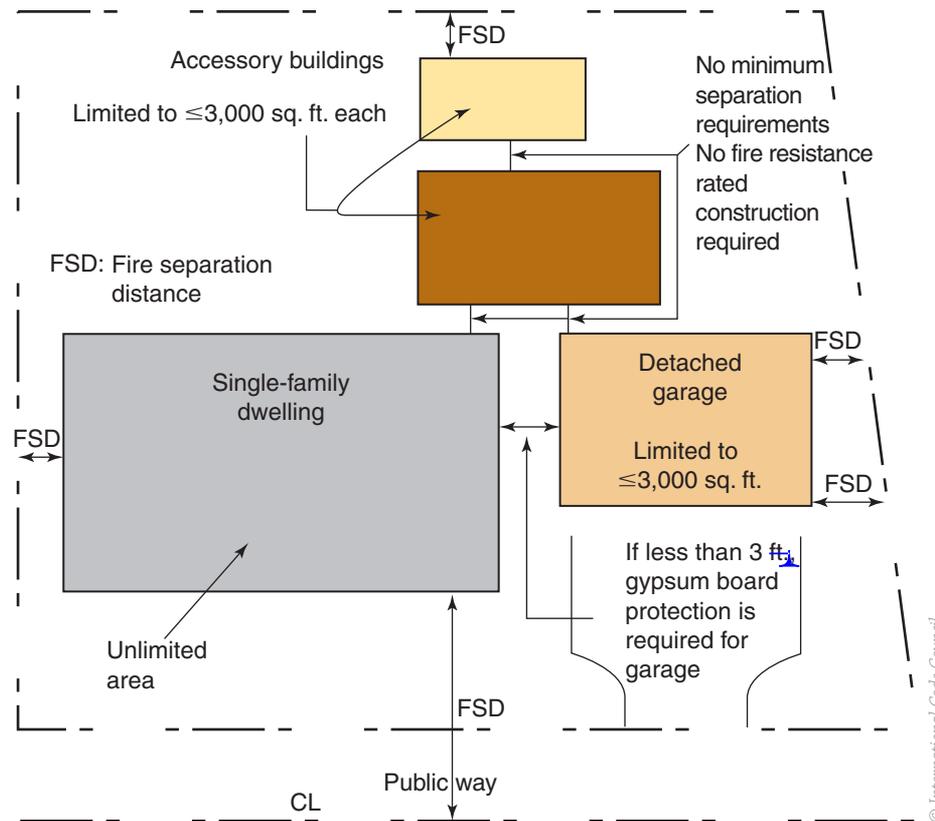
- No minimum fire separation distance
- Fire resistance not required
- Unlimited openings
- No protection required for penetrations •

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protected with an automatic fire sprinkler system, this minimum separation distance is 3 feet. For dwellings without sprinkler systems and for detached accessory buildings, the minimum separation between the unrated wall and the lot line is 5 feet (Figures 3-2 and 3-3).



**FIGURE 3-2** Fire resistance of exterior walls adjacent to lot lines



**FIGURE 3-3** Measuring fire separation distance

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The IRC also regulates projections and openings within this setback zone of 3 to 5 feet. Openings, typically windows or doors, are not permitted less than 3 feet from the lot line. For dwellings without sprinklers and detached accessory buildings, openings that are at least 3 feet but less than 5 feet from the lot line are limited to 25 percent of the wall area. This area limitation does not apply to dwellings protected with an automatic fire sprinkler system. Foundation vents for ventilation of under-floor spaces are not regulated for minimum fire separation distance. Projections, typically roof overhangs, require one-hour fire protection on the underside when less than the prescribed distance from the lot line (5 feet without sprinklers and 3 feet with sprinklers) and cannot project closer than 2 feet from the lot line. An exception permits a garage located within 2 feet of the lot line to have a 4-inch roof eave projection (Table 3-1 and Figure 3-4). Fire-resistant-rated construction, including provisions for protection of wall penetrations, is discussed further in Chapter 9 of this publication. [Ref. R302.1]

**Location of foundations adjacent to slopes**

Where slopes are steeper than 33.3 percent (4 inches per foot), foundations must be located a sufficient distance away from the slope to protect the integrity of the structure and provide adequate lateral support to the

**TABLE 3-1** Fire resistance of exterior walls adjacent to lot lines

Exterior Wall Element	Fire Separation Distance to Lot Line	Dwellings without Sprinkler System Detached Accessory Buildings <sup>1</sup>		Dwellings with Sprinkler System	
		Minimum Fire-resistance Rating	Restrictions	Minimum Fire-resistance Rating	Restrictions
<b>Walls</b>	5 feet and greater	0 hours		0 hours	
	3 feet to < 5 feet	1 hour	Tested for exposure from both sides	0 hours	
	0 feet to < 3 feet	1 hour	Tested for exposure from both sides	1 hour	Tested for exposure from outside
<b>Projections</b>	5 feet and greater	0 hours		0 hours	
	3 feet to < 5 feet	1 hour	on the underside	0 hours	
	2 feet to < 3 feet	1 hour	on the underside	1 hour	on the underside
	0 feet to < 2 feet	Not permitted <sup>2</sup>		Not permitted	
<b>Openings in walls</b>	5 feet and greater	0 hours	Unlimited area	0 hours	Unlimited area
	3 feet to < 5 feet	0 hours	Maximum 25% of wall area	0 hours	Unlimited area
	0 feet to < 3 feet	Not permitted		Not permitted	

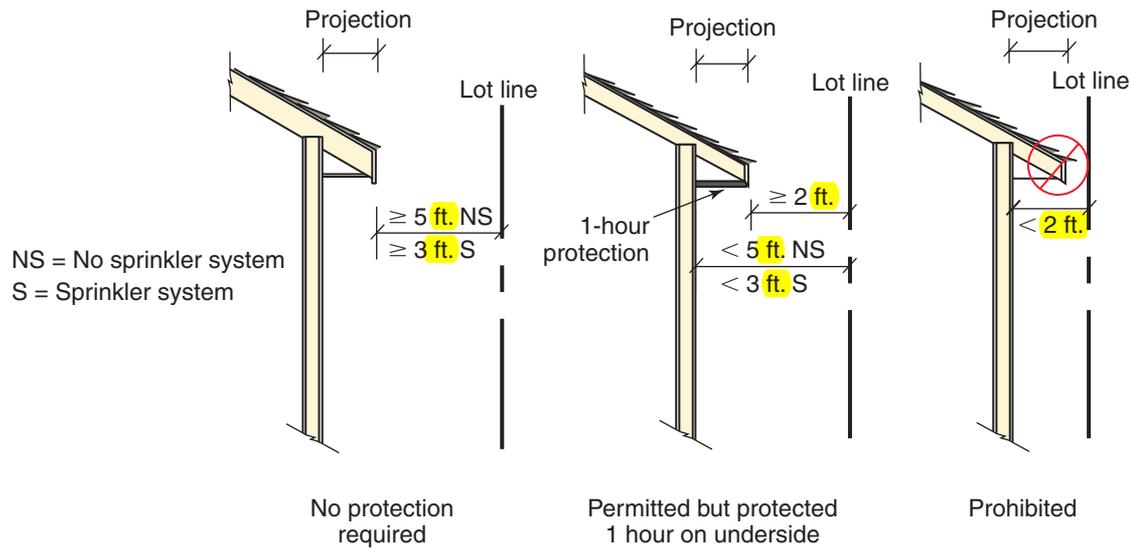
1. Detached sheds not greater than 200 square feet in area are not regulated for separation distance.

2. Detached garages within 2 feet of lot line are permitted to have a 4-inch roof eave overhang.

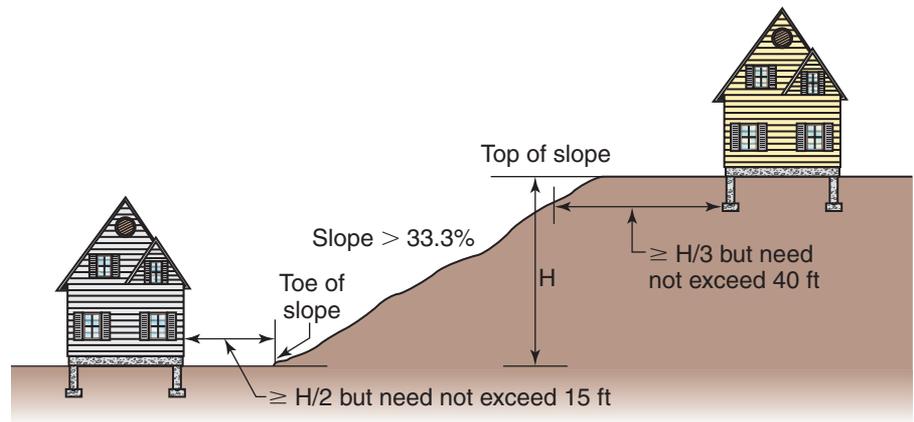
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**FIGURE 3-4** Roof projections at property line



**FIGURE 3-5** Foundations adjacent to slopes

footing. The clearance distance is based on the height of the slope. For a building located adjacent to the top of the slope (descending), the minimum distance is the height divided by 3, but does not need to exceed 40 feet. For a building located adjacent to the bottom of the slope (ascending), the minimum clearance is the height divided by 2, but does not need to exceed 15 feet. The code gives the building official the authority to approve alternate setbacks with lesser distances to slopes based on a design by a qualified engineer taking all site conditions into consideration (Figure 3-5). [Ref. R403.1.7]

## SITE PREPARATION

Regulation of site preparation activities related to construction of buildings under the IRC varies based on geographic location and local or site-specific conditions. The code is basically concerned with two things: soil characteristics related to the support and stability of foundations, and