

Zoning Tip Sheet # 2:

Zoning Base Planes and Measuring Building Height and Bulk under the Denver Zoning Code

This guide will show you how to apply the Denver Zoning Code to show the height and bulk of all structures on your property, including any proposed new construction, as measured from a required front and rear “base plane.” This guide will help you understand these important zoning concepts, and should be read in conjunction with the applicable Denver Zoning Code provisions, referenced below. The Denver Zoning Code may be found online at www.denvergov.org/zoning.

Purpose of Base Plane, Height and Bulk Standards and Rules of Measurement:

The concept of a zoning “base plane,” together with zone district regulations for maximum building height and bulk, are intended to appropriately site and scale new buildings in response to an existing or planned neighborhood scale and character. The use of an imaginary “base plane” tied to the original grade of a property, from which both building height and bulk plane are measured, protects neighborhood character by preventing excessive building height (whether measured in feet or stories) possible through manipulation of finished grade.

Applicability:

This tip sheet applies in all residential zone districts where development under the Urban House, Duplex, or Tandem House building forms requires the use of two base planes for measuring height and bulk. See DZC Sec. 13.1.2. Note that in the G-RH, G-MU, and G-RO-3 zone districts, the split in the two base planes occurs at 80% of the zone lot depth rather than at 65%.

Step #1. Determine the Front Base Plane and Show Proposed Height/Bulk of Buildings Located in the Front 65% or 80% of the Property (Zone Lot)

- A. Establish your property’s (zone lot’s) Primary Street Setback and draw the minimum setback line on your site plan. See Zoning Tip Sheet #1: Determining Block Sensitive Primary Street Setback.
- B. On your site plan, draw a line indicating the boundary between the “front” 65% (80%) of the total zone lot (property) depth and the “rear” 35% (20%) of the total zone lot (property) depth. See Figure 1.
- C. Establish (through a professional survey or by taking spot elevations) the original grade elevation at the points where the side interior property lines intersect the minimum setback line established in step 1.A above. See Figure 1, points E-1 and E-2. *Note:* On a corner lot, there will only be one point of intersection because there is only one side interior property line (the other is a street property line).
- D. Establish the elevation of the Front Base Plane by averaging the two spot elevations you established in Step 1.C. $(E-1 \text{ elevation} + E-2 \text{ elevation}) / 2 = \text{Front Base Plane elevation}$. *Note:* On a corner lot, the Front Base Plane elevation will equal the one spot elevation you established in Step 1.C.
- E. On your site plan, starting at the minimum setback line (Step 1.A.) and at the Front Base Plane elevation (Step 1.C), draw the Front Base Plane as a horizontal plane extending toward the rear of the property to the boundary line indicating the front 65% (80%) of the total lot depth (Step 1.B). See Figure 1.
- F. The Front Base Plane has now been set and all vertical measurements of height in feet and stories for buildings or portions of buildings located in the front 65% (80%) of the property will start from the Front Base Plane elevation. See Figure 2. All proposed new construction cannot exceed these maximum heights, unless an exception is expressly allowed by the zoning code.

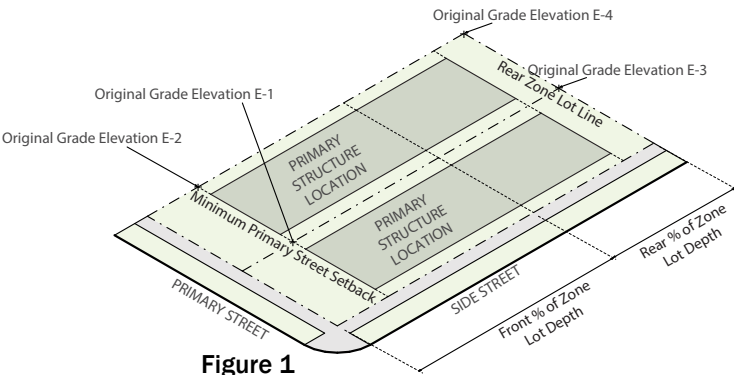


Figure 1

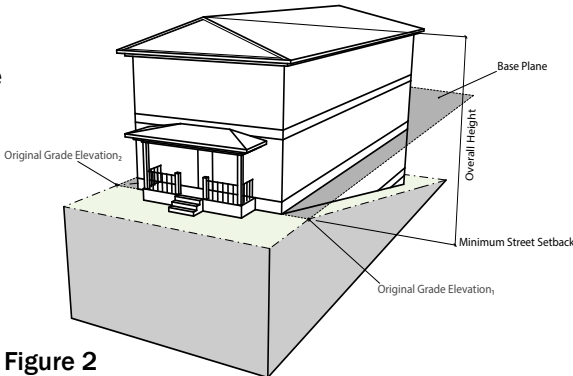


Figure 2



Step #2. Determine the Rear Base Plane and Show Proposed Height/Bulk of Buildings Located in the Rear 35% or 20% of the Property (Zone Lot)

- A. Establish (through a professional survey or by taking spot elevations) the original grade elevation at the points where the side interior property lines intersect with the property's rear property line. See Figure 1, points E-3 and E-4. *Note:* On a corner lot, there will only be one point of intersection with the rear property line because there is only one side interior property line.
- B. Establish the elevation of the Rear Base Plane by averaging the two spot elevations you established in Step 2.A. (E-3 elevation + E-4 elevation) / 2 = Rear Base Plane elevation). *Note:* On a corner lot, the Rear Base Plane elevation will equal the one spot elevation you established in Step 2.A.
- C. On your site plan, starting at the rear property line and at the Rear Base Plane elevation (Step 2.B), draw the Rear Base Plane as a horizontal plane extending toward the front of the property to the boundary line indicating the rear 35% (20%) of the total lot depth (Step 1.B). See Figure 2.
- D. The Rear Base Plane has now been set and all vertical measurements of height in feet and stories for buildings or portions of buildings located in the rear 35% (20%) of the property will start from the Rear Base Plane elevation. See Figure 2. All proposed new construction cannot exceed these maximum heights, unless an exception is expressly allowed by the zoning code.

Step #3. Determine the Allowed Bulk Plane (Building) Envelope

- A. On your building elevation plans, starting from the Front and Rear Base Plane elevations (Steps 1.C and 2.B), draw a line vertically to the allowed maximum building height(s) set by the applicable building form standards (e.g., Suburban House, Urban House, Duplex, or Detached Garage forms). See ① on Figure 3 and ① on Figure 4.
- B. Then, starting from the Front and Rear Base Plane elevations at the side property lines (interior and/or street side property lines), draw a line vertically to the bulk plane vertical height established by the building form standards. See ② on Figure 3 and ② on Figure 4.
- C. Next, starting at the bulk plane vertical height (Step 3.B), draw a line sloping toward the center of the property at the 45° angle established by the building form standards. See ③ on Figure ③ and Figure 4.
- D. All proposed new construction must fit within the allowed bulk plane envelope, and within any required side setback (④ in Figure 3), unless an exception is expressly allowed by the zoning code.

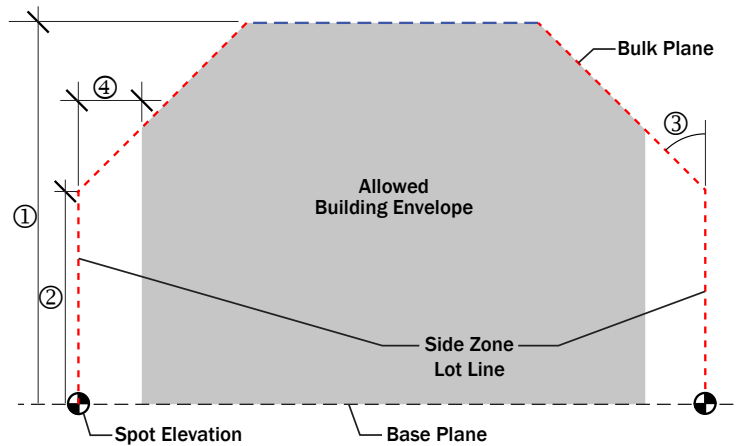


Figure 3

- ①. Maximum Height
- ②. Bulk Plane Vertical Height
- ③. Bulk Plane Slope 45°
- ④. Side Setback

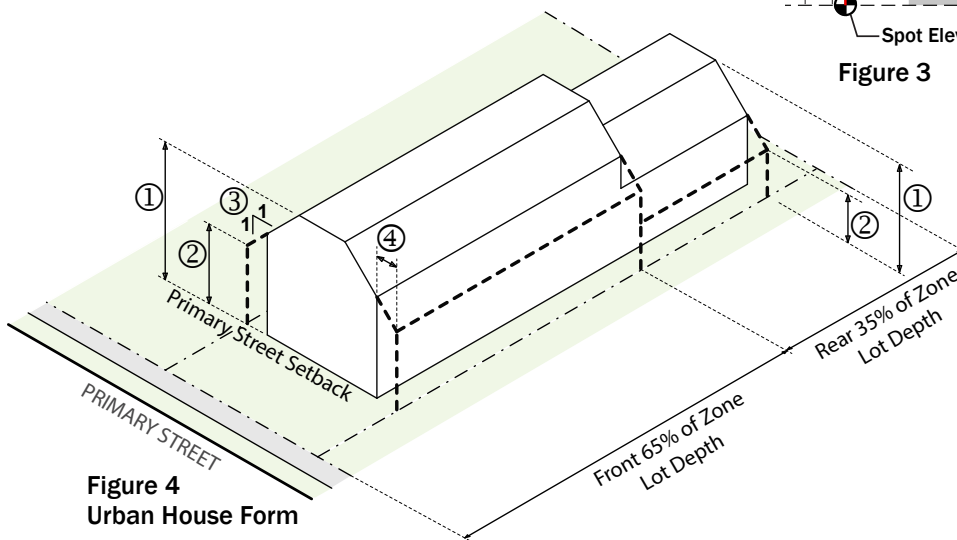


Figure 4
Urban House Form

Denver Zoning Code reference sections:

- Front Base Plane 13.1.2.2
- Rear Base Plane 13.1.2.2
- Height in Stories 13.1.2.3
- Bulk Plane 13.1.4.2
- Primary Street 13.1.5.2
- Block Sensitive Setbacks 13.1.5.3

* For allowed height & bulk encroachments see the Denver Zoning Code Exceptions for the specific Zone District.