

This is a new section that describes how measurements are determined. Your current Ordinance lacks applicable standards (all of this is new).

This would be a new Article:

12.3.1. PURPOSE

The purpose of this section is to clarify the rules of measurement and exemptions that apply to all principal and accessory uses allowed in this Ordinance. These standards may be modified by other applicable sections of this Ordinance.

12.3.2. MEASUREMENT, GENERALLY

A. STRAIGHT LINES

Unless otherwise stated in this Ordinance, distances specified in this Ordinance are to be measured as the length of an imaginary straight line joining two points.

B. ROUNDING

Unless otherwise provided in this section or elsewhere in this Ordinance, numerical operations that result in fractions shall be rounded upwards or downwards in accordance with this section:

1. DENSITY

When the determination of the total number of dwelling units permitted on a lot results in a fraction, any fractional component shall be disregarded and rounded down to the nearest whole number.

2. OFF-STREET PARKING

When the computation of the number of maximum parking spaces results in a fraction, the fraction shall be rounded down to the previous whole number.¹

3. LANDSCAPING

When the computation of the amount of landscaping material to be provided results in a fraction, the minimum number of shrubs or trees required shall be rounded upward to the next highest whole number.

4. ALL OTHER INSTANCES

For all calculations not explicitly covered above, a fraction of one-half (0.5) or more shall be rounded up to the next highest whole unit, and a fraction of less than one-half (0.5) shall be disregarded.

C. IRREGULAR SHAPES

In cases where an irregular shape complicates the application of these standards, the Staff shall determine the applicable dimensional, setback, or bulk standards in accordance with the standards in this section and Article 3 *Determinations* of this Ordinance.

¹ Remember: per recent State law change communities are not permitted to establish a minimum parking requirement. You are however, allowed to establish a maximum parking requirement.

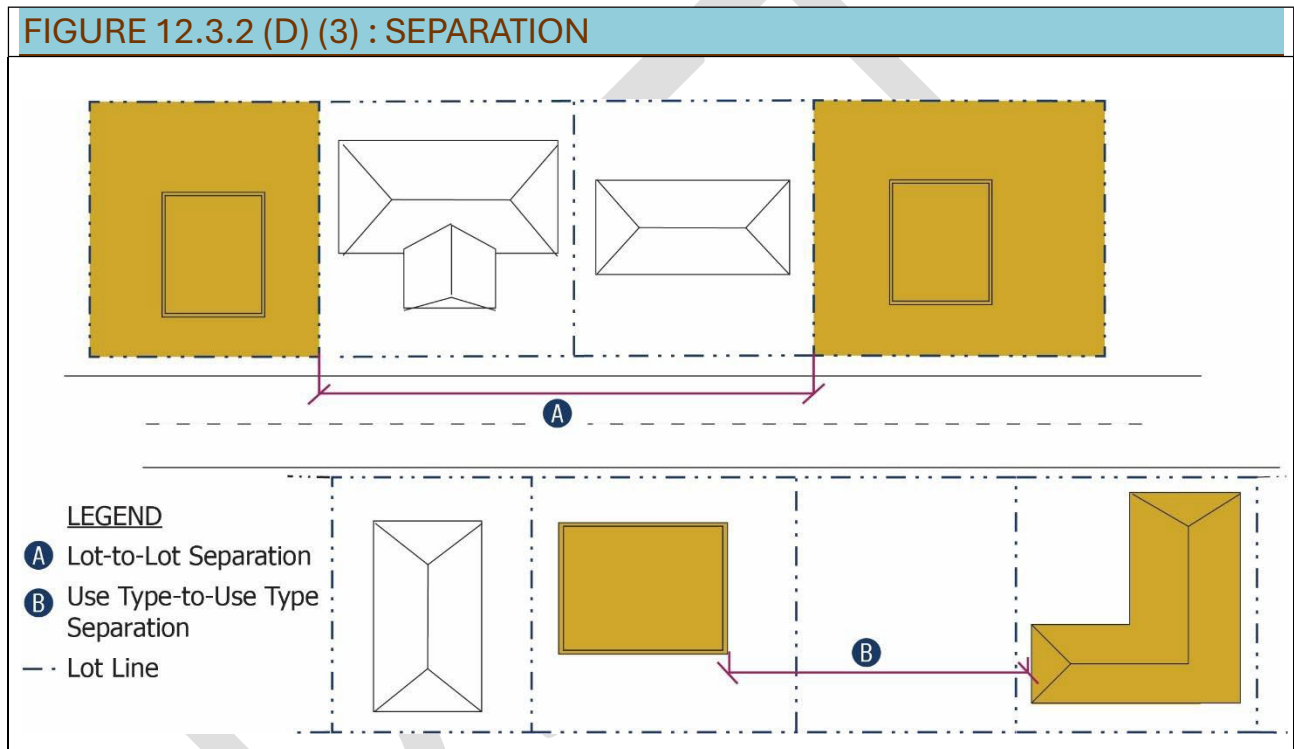
D. SEPARATION

1. Lot Separation

When the provisions of this Ordinance require separation between two or more lots, or a lot and another feature, separation shall be measured by drawing straight lines from the nearest point of one lot line to the nearest point of the lot line subject to the separation requirement (see Figure 8.3.2.D, Separation).

2. Use Separation

When the provisions of this Ordinance require separation between two or more lots, or a lot and another feature, separation shall be measured by drawing straight lines from the nearest point of one lot line to the nearest point of the lot line subject to the separation requirement (see Figure 12.3.2.D (3), Separation).



E. ABUTTING VS. ADJACENT

1. ABUTTING

The term abutting describes a condition where two or more features (a lot line, building, driveway, etc.) are immediately beside or next to one another either on the same lot or on different lots sharing a common lot line.

2. ADJACENT

The term adjacent describes a condition where two or more similar features (a lot line, building, use type, structure, site feature, etc.) are proximate to one another, but are separated by some form of intervening feature, such as a street, alley, water feature, railroad, lot or property under separate ownership, or natural feature of sufficient size so as to prevent direct site visibility or impede the movement of sound

from one feature to another.

12.3.3. LOT DIMENSIONS

A. TYPES OF MEASUREMENTS

1. ACREAGE

The total number or gross number of acres on a tract or site.

2. LOT DEPTH

The horizontal dimension measured from the front lot line to the extreme rear lot line. For irregularly shaped lots where the front and rear lines are not parallel, the lot depth shall be determined by calculating the mean depth, measured by taking the average of the distance along both side lot lines and an imaginary centerline drawn from the midpoint of the front lot line to the midpoint of the rear lot line. (see Figure 12.3.3.A (6), Lot Measurements).

3. LOT WIDTH

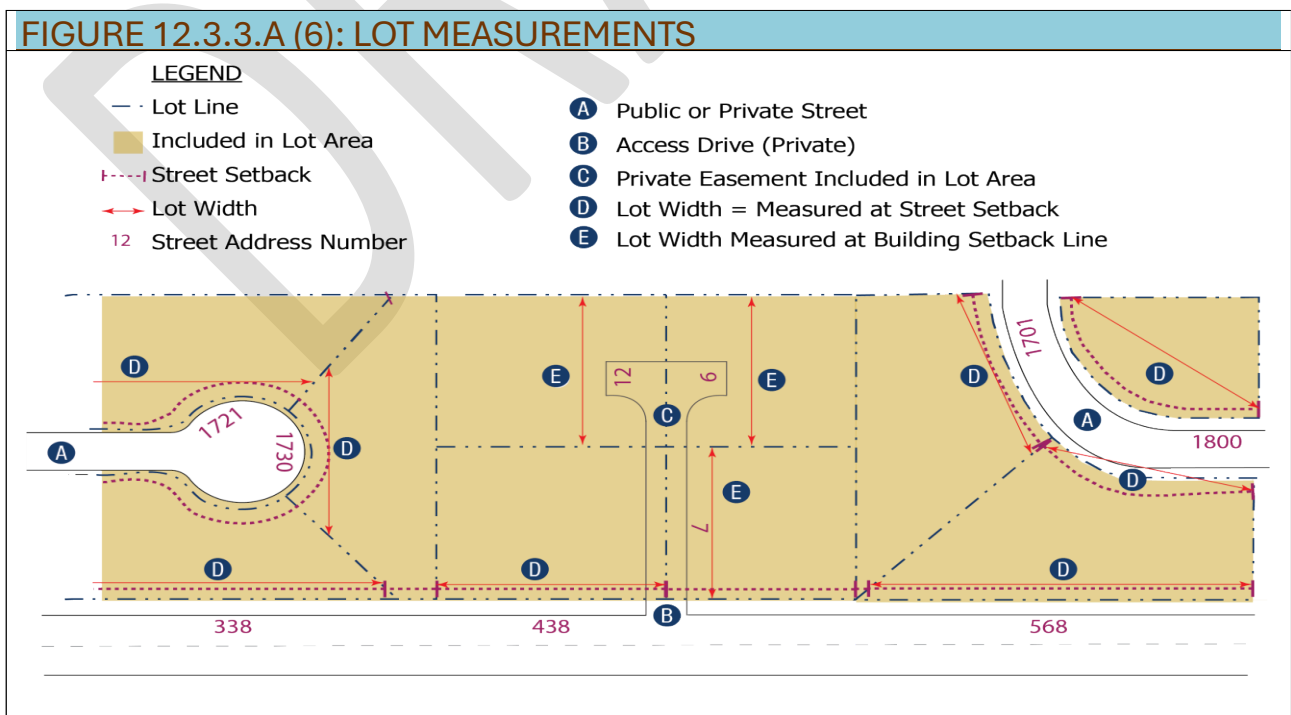
The width of a lot is measured at right angles to its depth at the edge of the street setback or at a proposed building setback line, whichever is further from the street right-of-way.

4. MINIMUM LOT AREA

The minimum amount of required land area, measured horizontally, contained within the bounding lines of a lot. Lands located within any private utilities, drainage, or access easements shall be included within the lot area.

5. STREET FRONTAGE

The continuous linear length of a lot line abutting a public or existing private street right of way.



4. STREET LOT LINE

2. FLAG LOT

A lot having a shape and configuration where access to the street frontage is provided by a narrow extension, arm, or panhandle of the main portion of the lot. The land area within the narrow access strip (the "pole") shall be excluded from the calculation of the Minimum Lot Area, and the buildable portion of the lot (the "flag") must meet all standard dimensional requirements independently.

3. INTERIOR LOT

A lot other than a corner lot, possessing only one lot line that establishes street frontage.

4. LOT OF RECORD

A lot that is a part of a subdivision, a plat of which has been recorded in the office of the Union County Register of Deeds, or a lot described by metes and bounds, the description of which has been recorded with the Union County Register of Deeds.

5. THROUGH LOT (DOUBLE FRONTAGE LOT)

A lot which fronts upon two parallel streets, and/or which fronts upon two streets which do not intersect at the boundaries of the lot.

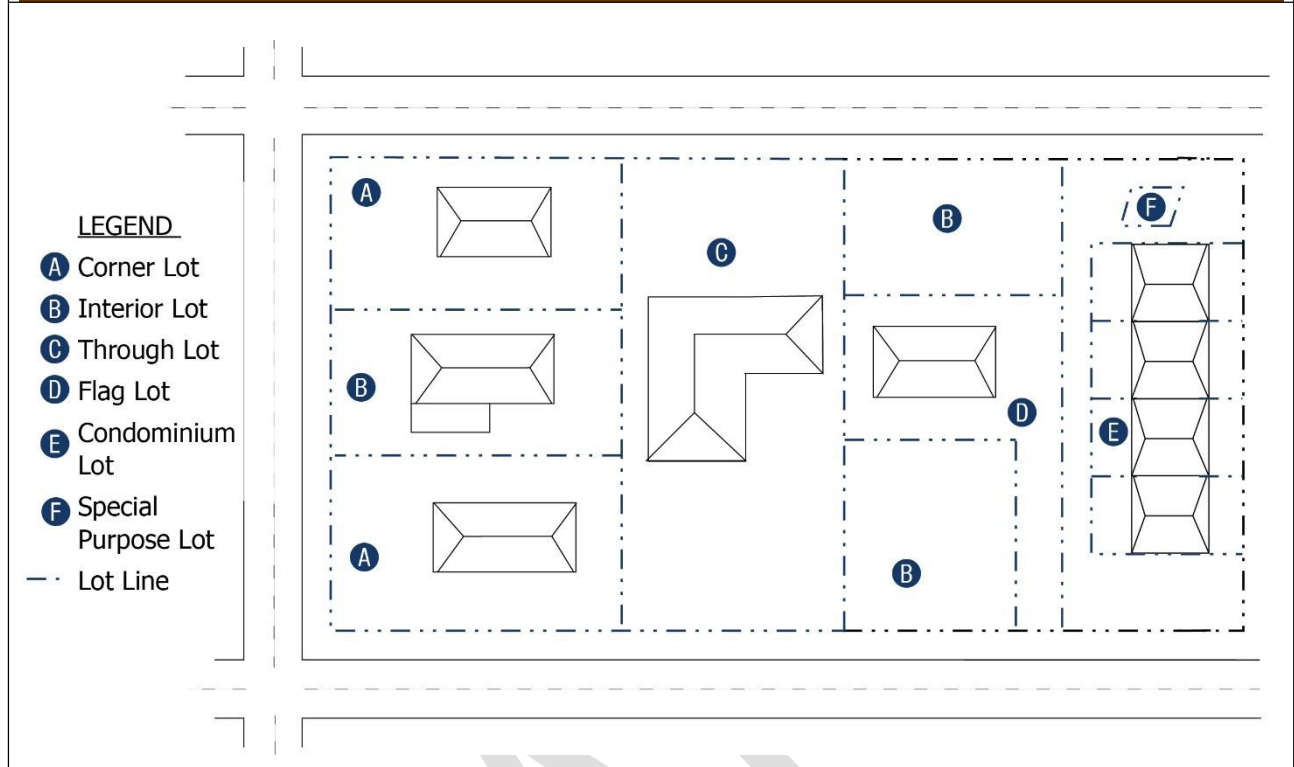
6. LOTS SERVING CONDOMINIUM USE TYPES

Individual condominium uses, whether residential or non-residential, are exempted from minimum lot area requirements in this Ordinance but shall be located on a larger site or parent tract that meets the standards for the zoning district where located.

7. SPECIAL PURPOSE LOT

A lot established exclusively for the purpose of housing community-level infrastructure, open space, stormwater facilities, common mail boxes, signage advertising the development, or landscaping, and which shall not be used as a building lot for a residential, non-residential, or mixed principal use.

FIGURE 12.3.3.C (8), LOT TYPES



12.3.4. DENSITY

Residential density is the maximum allowable number of residential dwelling units permitted on a particular site, tract, lot, or other unit of land area, typically expressed as a maximum number of residential units per acre.

A. CALCULATION

1. Maximum residential density is calculated by dividing the square footage of a lot by the number of square feet in an acre (43,560), then multiplying the maximum number dwelling units allowed in the zoning district and rounding the product downwards to remove any fractions.

Example:

Lot size: 52,000 square feet / 43,560 = 1.19 acres.

Zoning district maximum density is 1.08 units per acre: 1.19 x 1.08 = 1.28. Maximum number of residential units = 1.0 (fractions are rounded downwards).

2. Riparian buffers shall be included in the calculation of the square footage of a tract or site for the purposes of determining the maximum residential density.
3. Land area associated with floodplains shall not be included in the calculation of the square footage of a tract or site for the purposes of determining the maximum residential density.
4. Land area located within a right-of-way shall not be included in the calculation of allowable density.
5. Maximum residential density in a particular zoning district may be increased

beyond the amount indicated in the underlying zoning district, in accordance with the standards in contained herein.

B. DENSITY EQUIVALENCE

1. Accessory dwelling units associated with a single-family or duplex residential principal use shall not be counted toward the maximum allowable residential density of the lot.
2. When calculating density for a private dormitory associated with an educational use, every two bedrooms in the facility shall be equivalent to one regular dwelling unit.
3. Maximum density allocations do not apply to student housing or lodging facilities located on college or university campuses when owned or operated by the institution. In these instances, the housing is considered an accessory component to the institutional principal use.

12.3.5. SETBACKS

A setback is the horizontal distance from a lot line or street right-of-way line to the nearest part of the applicable building, structure, sign, or activity, measured perpendicularly to the line (see Figure 12.3.5 (D) (6), Setbacks).

A. PERIMETER

Setbacks applied to multiple-building or multiple-lot developments that apply exclusively to the outermost structures along the boundary of the overall development tract. A perimeter setback does not override or apply along street frontages where the street setback prevails.

B. REAR

A setback from an interior lot line lying on the opposite side of the lot from the street setback.

C. SIDE

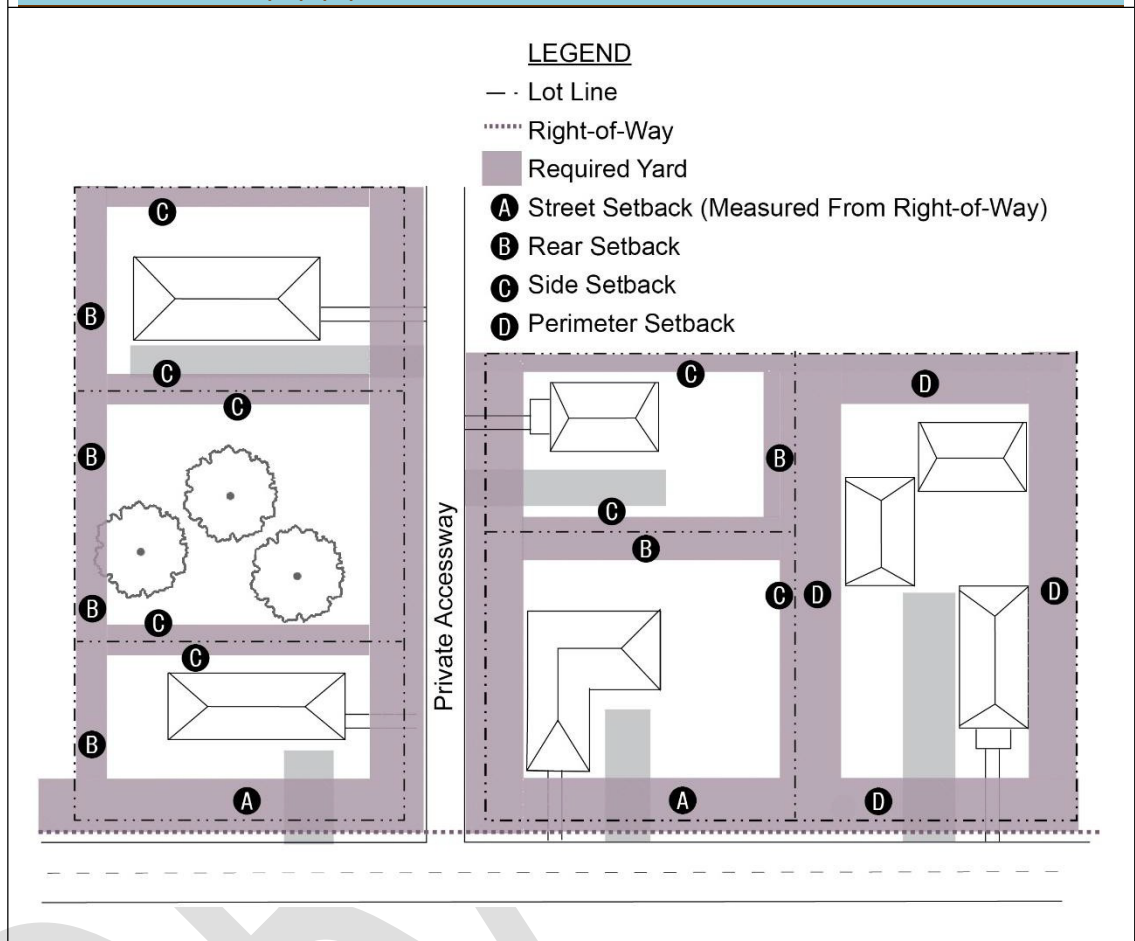
Any interior property line setback other than a rear setback.

D. STREETS

1. A street setback measured from the right-of-way edge associated with a public street or existing private street.
2. The street setback is a minimum standard; buildings may be located farther from the right-of-way except where a maximum street setback or build-to zone is explicitly identified.

Where the street right-of-way edge is not readily identifiable, it shall be determined by measuring outward from the physical street centerline a distance equal to one-half of the total planned right-of-way width. This edge location shall be certified by a professional engineer or land surveyor licensed by the State of.
3. Lots shall provide a street setback from all lot lines abutting a street. The Town may require a deeper setback from lot lines abutting a street in cases when the ultimate street-right-of-way width has not yet been acquired.
4. For lots located on a cul-de-sac bulb, the minimum street setback line shall be measured along the arc of the right-of-way radius curve.

FIGURE 12.3.5 (D) (6), SETBACKS



12.3.6. IRREGULARLY SHAPED LOTS

To accommodate parcels with complex boundaries, non-parallel lines, or triangular shapes, the following specialized rules establish how standard setback parameters are adapted to irregular geometries.

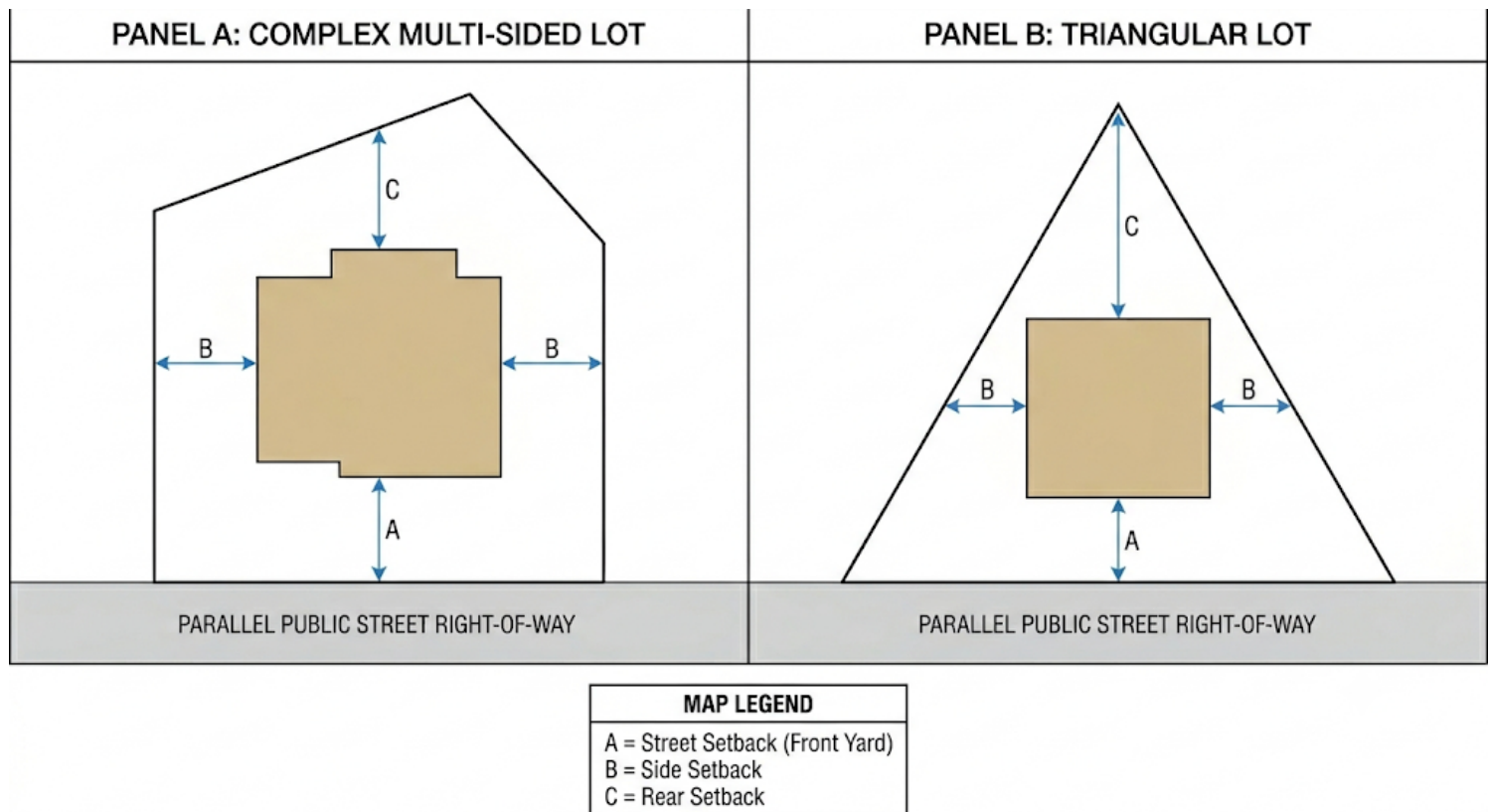
A. LOTS WITH COMPLEX SHAPES

For lots with a complex irregular shape where typical front, side, and rear designations cannot be uniformly applied, the front and side setbacks shall be measured perpendicularly from the respective front and side exterior facades of the proposed structure to the closest corresponding property lines. The rear setback shall be measured perpendicularly from the furthest rear facade of the structure to the rear property line.

B. TRIANGULAR LOTS

For lots with a triangular shape the front setback shall be measured from the front facade. The side setback shall be measured from the midsection of the side facade or the widest part of the structure; whichever is greater. The rear setback shall be measured perpendicularly from the rear facade to the rear lot line or to the rear vertex point, whichever is lesser.

FIGURE ____



12.3.7. LOT COVERAGE

Lot coverage is the percentage of a lot or development site that is covered by buildings or roof structures, excluding allowed projecting eaves and balconies.

A. BUILD-TO ZONE

The area between the minimum and maximum build-to zone boundaries where a specified percentage of a building's front facade must be located. The build-to zone extends across the entire width of the lot.

B. BUILD-TO ZONE WIDTH

The build-to zone width shall be determined by measuring the distance in a straight line between two farthest points on the minimum build-to zone boundary.

12.3.8. HEIGHT

A. MEASUREMENT

Building height shall be measured from the finished or established grade elevation following any land disturbing activities (see Figure 12.3.7 (C) (4), Height).

B. MAXIMUM

Building height is the vertical distance from a point established as the mean elevation of the finished grade along the front façade of a building to any of the following points:

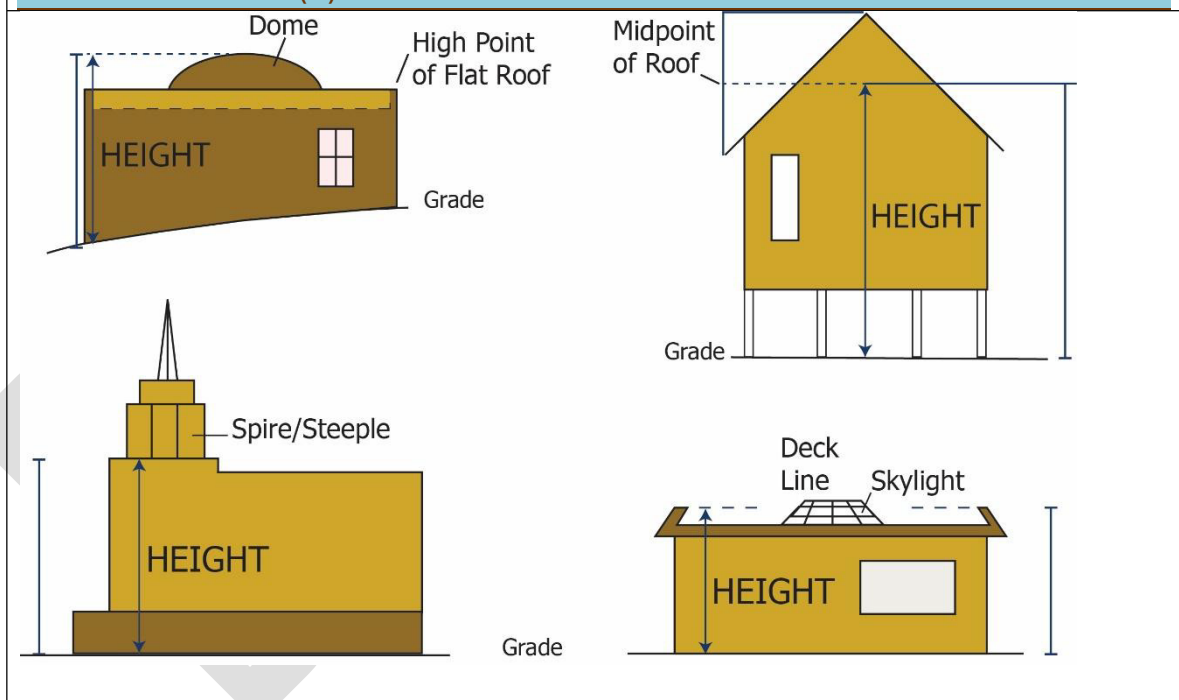
1. The highest point of a flat roof (excluding coping or parapet walls shorter than five feet above the roof deck);
2. The deck line of a mansard roof;
3. The mid-point of the roof between the ridge and the eaves for a gable, hip, or gambrel roof; or
4. To the highest point of a dome, shed, or cricket-style roof.

C. STORY

A building story is the portion of a building where all rooms share the same floor and ceiling level.

1. A crawlspace or basement with an average ceiling height of less than seven feet is not considered as a story.
2. An attic with an average ceiling height of less than six feet is not considered a story.
3. Nothing in this Section shall be deemed to alter, replace, or mandate the definition of a 'building story' as defined within the State of North Carolina Building Code.

FIGURE 12.3.7 © (4): HEIGHT



12.3.9. SLOPE AND ELEVATION

A. SLOPE

The degree of deviation of the ground surface from a flat, horizontal elevation, expressed as a percentage or degrees of deviation from horizontal. The slope of a lot is calculated by dividing the vertical rise or fall (change in elevation) by the horizontal run (distance), multiplied by 100. The slope of a lot may be determined using the following approach:

B. FINISHED GRADE

The established ground elevation following grading, excavation, or other approved land-

disturbing activity.

C. NATURAL GRADE

The level of the ground elevation prior to the commencement of any development, grading, or land-disturbing activity.

D. BASE FLOOD ELEVATION

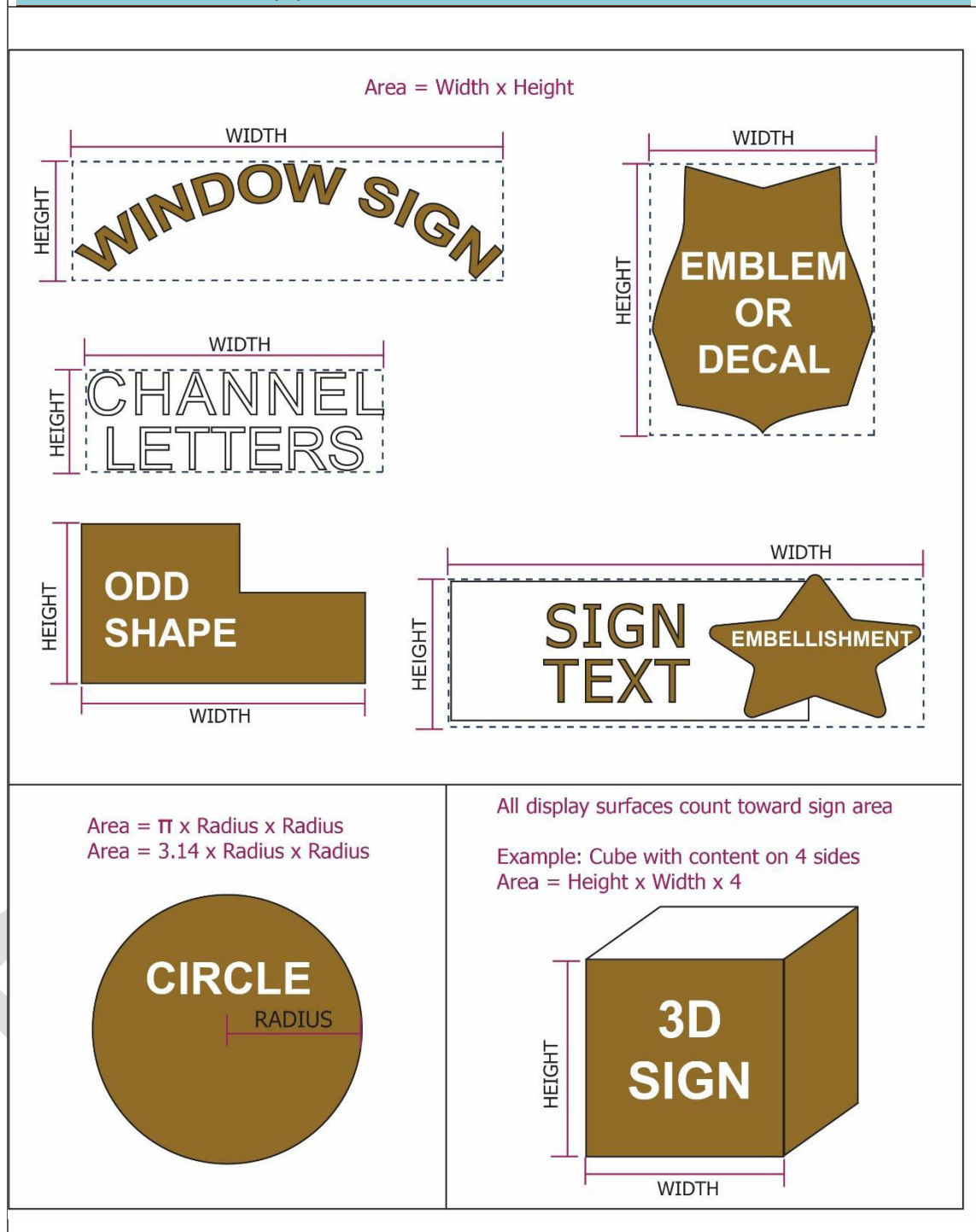
1. A determination of the water surface elevations of the base flood as published in the flood insurance study.
2. Base flood elevation shall be calculated in accordance with the provisions of Article ____ *Flood Damage Prevention Regulations* of this Ordinance.

12.3.10. SIGNAGE MEASUREMENT

A. SIGN AREA DETERMINATION

1. The surface area of a sign is computed as including the entire area within a parallelogram, triangle, circle, semi-circle, or other regular geometric figure, including all of the elements of the display, including incidental or changeable copy signage, frames, display of identification or licensing officially required by any governmental body, and structural elements (see Figure 8.3.10.A, Sign Measurement).
2. The supporting structure for a projecting sign shall not be included within the calculation of the surface area of a sign unless otherwise indicated in this Ordinance.
3. In the case of signs mounted back-to-back, only one side of the sign is to be included in the calculation of sign face area. Otherwise, the surface area of each sign is to be separately computed.
4. When two identical sign faces are placed back-to-back so that both faces cannot be viewed from any point at the same time, and when such sign faces are part of the same sign structure and are not more than 42 inches apart, the sign area shall be computed by the measurement of one of the faces.
5. For multi-faced signs, the sign area shall be computed by including all sign faces visible from any one point.
6. In the case of cylindrical signs, signs in the shape of cubes, or other signs, which are substantially three-dimensional with respect to their display surfaces, the entire display surface or surfaces, is included in computations of area.
7. Embellishments such as display portions of signs extending outside the general display area, incidental signage, changeable copy, or supplemental signage affixed to or included on a sign or sign support structure shall be computed as part of the total surface area of the sign, unless otherwise indicated in this Ordinance.
8. If a sign is attached to an entrance wall or fence, only that portion of that wall or fence on which the sign face or letters are placed shall be calculated in the sign area.

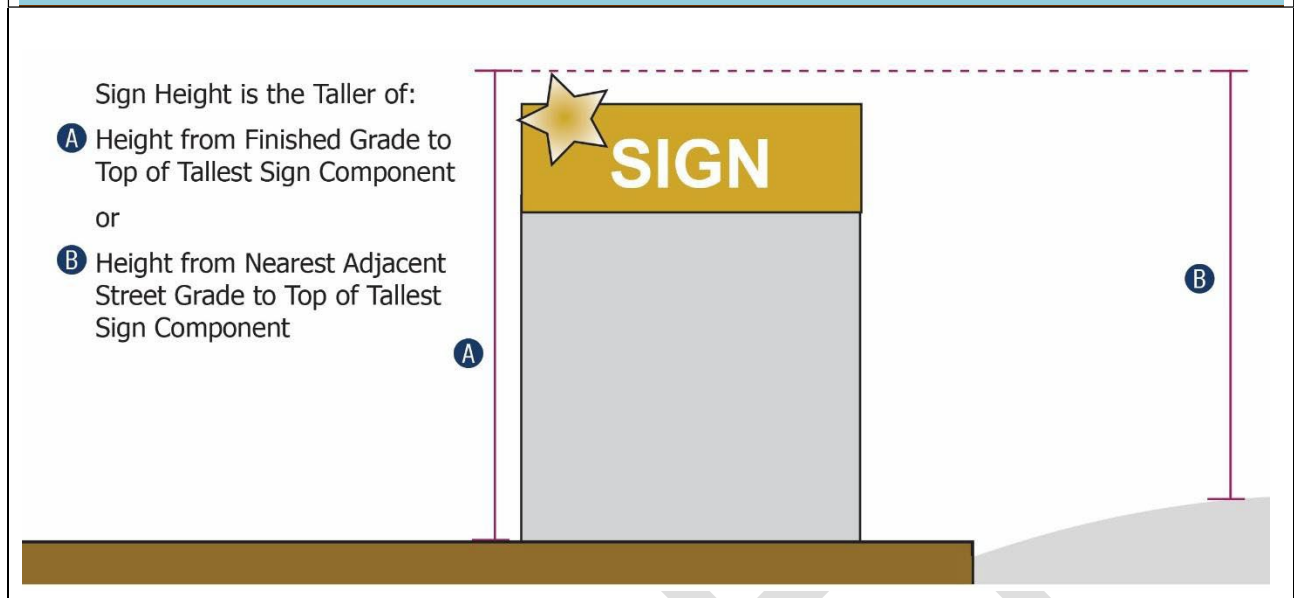
FIGURE 12.3.10.A (9) : SIGN MEASUREMENT



B. SIGN HEIGHT DETERMINATION

1. Sign height shall be computed as the vertical distance from the base of the sign at finished grade, or from the nearest adjacent street grade to which the sign is oriented, whichever is higher, to the top of the highest component of the sign structure. Finished grade shall exclude any fill, berming, or mounding constructed solely for the purpose of elevating the sign.

FIGURE 8.3.10.B: SIGN HEIGHT



12.3.11. LANDSCAPING COMPUTATION

A. TREE SIZE AT TIME OF PLANTING

1. TREES UNDER FOUR INCHES IN CALIPER

The minimum size at the time of planting shall be determined by measuring the caliper (diameter) of the tree trunk at a height of six inches above the tree bole (the point where the trunk meets the soil line) (see Figure 8.3.11, Landscaping Calculation).

2. TREES OVER FOUR, BUT LESS THAN TWELVE INCHES, IN CALIPER

The minimum size at the time of planting shall be determined by measuring the caliper of the tree trunk at a height of 12 inches above the tree bole.

FIGURE 8.3.11: LANDSCAPING CALCULATION

The diagram illustrates the measurement points for three types of trees during landscaping calculations. The ground is represented by a yellow area at the bottom, and the tree trunks are grey. The canopy is shown in brown.

LEGEND

- A 6" Above Grade
- B 12" Above Grade
- C 4.5' Above Grade

Tree Less Than 4" in Caliper: The measurement point is 6" above the grade (A).

Tree Over 4" and Less Than 12" in Caliper: The measurement point is 12" above the grade (B).

Existing Tree over 12" in Caliper: The measurement point is 4.5' above the grade (C).

Caliper Size: A circular tree trunk is shown with a vertical line indicating the measurement point. The text "tree" is inside the circle.

Grade: Grade is the point where the soil comes into contact with the tree's trunk.

B. DETERMINING TREE SIZE OF EXISTING TREES

1. Existing tree size shall be determined by measuring the Diameter at Breast Height (DBH), defined as the diameter of the tree trunk measured at a height of four and one-half (4.5) feet above the tree bole. For multi-stemmed trees, the cumulative DBH shall be recorded as the straight sum of all individual stem diameters, or capped at the largest three stems.

C. ROUNDING

When computation of the amount of landscaping material to be provided results in a fraction, the minimum number of shrubs or trees to be provided shall be rounded upwards to the next highest whole number.

D. CALCULATION OF REQUIRED YARD AREAS

1. Where a driveway, sidewalk, or greenway trail intersects a required landscaping yard, the width of the pavement or trail shall be subtracted from the total required yard depth or width.
2. Where a utility or drainage easement that prohibits planting intersects a required landscaping yard, the width of the easement shall not be subtracted from the required yard distance. Required plant material shall be rearranged and located entirely outside the easement boundaries but within the remaining landscaping yard area.

12.3.12. FENCE AND WALL HEIGHT

A. MEASUREMENT LOCATION

1. In cases where a fence or wall is located within a required setback or required yard, fence height shall be determined along the grade of the adjacent lot or street right-of-way.

2. Where a fence or wall is located outside a required setback or yard, the height shall be determined strictly based on the finished grade of the lot where it sits.
3. In here a fence or wall is placed on an earthen berm, the maximum height measurement shall include the height of the berm, measured from the toe of the slope. Where a fence is placed directly on top of a structural retaining wall facing an adjacent property line, the heights of the wall and fence shall be combined if located within 5 feet of the property boundary.
4. Fence height shall be measured at the highest point above grade (not including columns or fence posts) on the portion of the fence nearest an abutting or adjacent lot or street right-of-way.

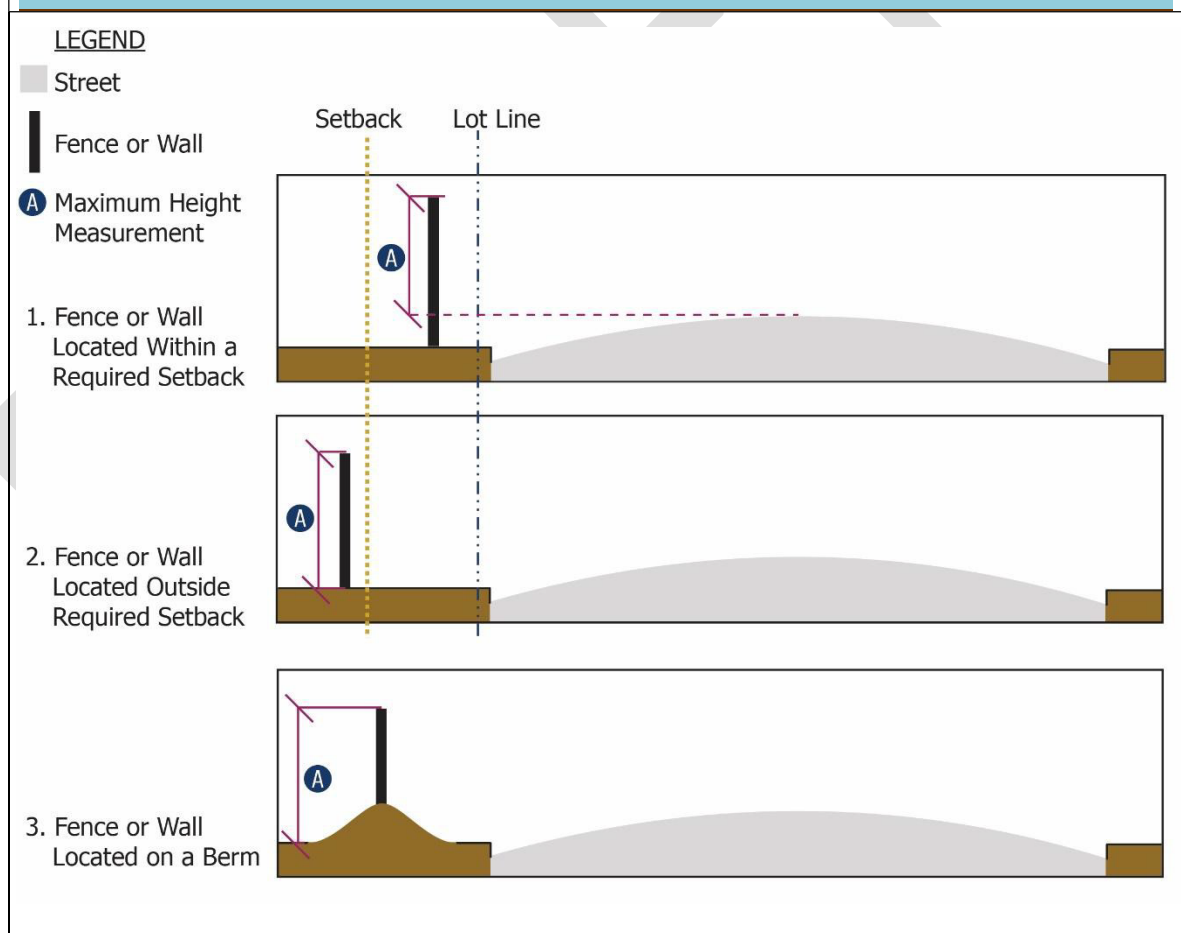
B. COLUMNS AND POSTS

Columns, posts, or decorative caps shall not exceed a height of 18 inches above the maximum built height of the fence panel.

C. SAFETY RAILINGS

Safety railings required by the North Carolina Building Code shall not be included in wall height measurements.

FIGURE 8.3.12: FENCE AND WALL HEIGHT



12.3.13. EXTERIOR LIGHTING

A. MEASURED AT LOT LINE

Light level measurements shall be taken at the property line of the lot generating the

light. If physical access is restricted, measurements may be taken at the boundary line of the adjoining public street right-of-way.

B. MEASURED AT FINISHED GRADE

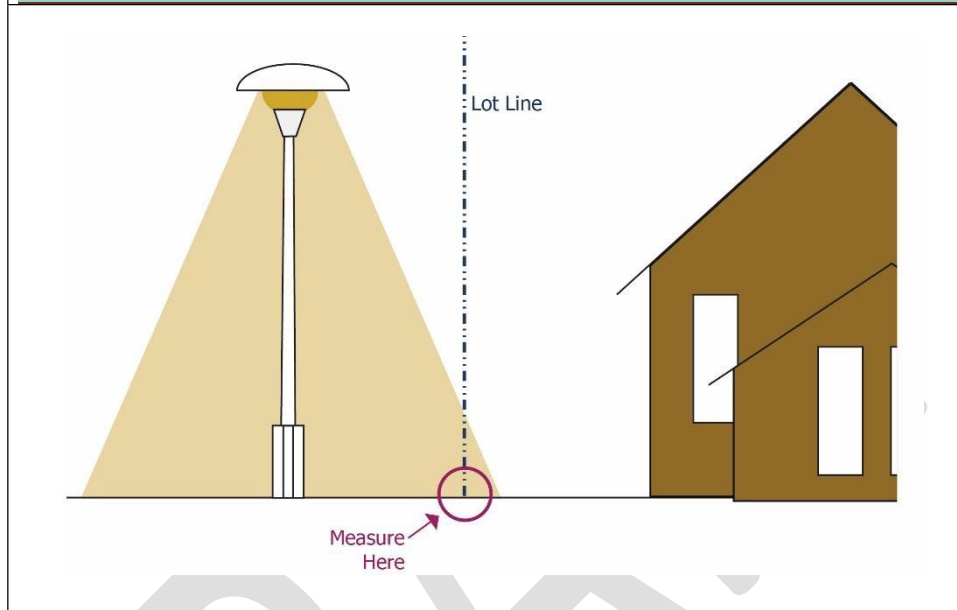
Measurements shall be taken at finished grade (ground level) with the light-registering sensor held parallel to the ground pointing upward.

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C. DETERMINATION OF GLARE

Light meters must feature cosine and color correction with an accuracy tolerance no greater than $\pm 5\%$ and must have been calibrated within the previous 12 months.

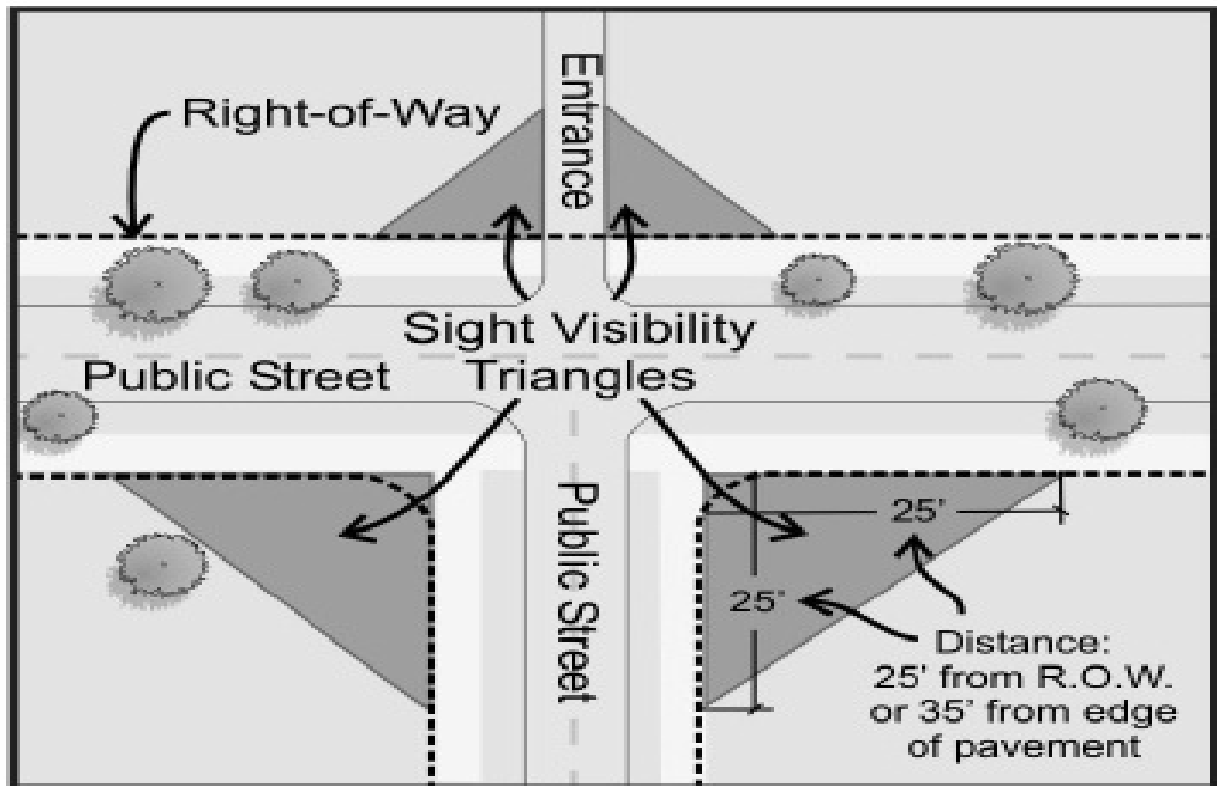
FIGURE 8.3.13: EXTERIOR LIGHTING MEASUREMENT



8.3.1. VISION

A. TRIANGULAR SITE DISTANCE

1. To maintain a safe clear line of sight for motorists, cyclists, and pedestrians, no fences, walls, shrubs, trees, or structural obstructions shall be permitted within the vertical space between 30 inches and 10 feet above ground level inside a designated sight triangle.
2. All elevation measurements shall be taken from the street surface at the centerline of the applicable street.



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