SQUARE FOOTAGE–METHOD FOR CALCULATING: ANSI Z765-2003

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An American National Standard is developed through a consensus process that involves those organizations and individuals directly and materially affected by the existence of a standard. A standard itself is a voluntary guide for producers and consumers. The American National Standards Institute is the central body responsible for identifying a single, consistent set of voluntary standards and verifying that the principles of openness and due process are heeded. All American National Standards are subject to periodic review and revision.

A standard allows individuals and organizations that use different terminologies based on different points of view to communicate, cooperate, and calculate quantities on a common basis. This standard promotes these goals in the hope that square footage calculation can become an item of agreement rather than a point of contention between groups with different interests and concerns.

This standard for the calculation and reporting of above-grade square footage and below-grade square footage in single-family houses is offered for voluntary application. The standard must be applied as a whole. The standard is not meant to replace or supersede any legal or otherwise required existing area measurement method. It may be used in proposed, new, or existing single-family houses of any style or construction but is not applicable to apartment/multifamily buildings. It does not cover room dimensions.

Before the adoption of the standard in 1996, no nationwide standard existed in the United States for measuring square footage in single-family houses. By contrast, a standard applicable to commercial buildings has been in effect for 80 years. In 1915, the Building Owners and Managers Association International (BOMA) developed a standard method for measuring floor area in office buildings. The BOMA standard was revised in 1952, 1955, 1971, 1980, 1989, and 1996 and now bears the title *Standard Method for Measuring Floor Area in Office Buildings, ANSI/BOMA Z65.1-1996.*

The Ontario New Home Warranty Program issued *Builder Bulletin No. 22–Floor Area Calculations* on November 15, 1989. The bulletin's set of requirements for uniform floor area calculation applies to single-family houses and condominiums that enroll in the program and only when a numeric value for floor area is used in advertising and sales materials, in an agreement of purchase and sale, in a construction contract, or whenever the size of the house is stated in printed materials. Over the years, other groups have developed their own conventions for square footage calculation within their organizations.

In April 1994, the National Association of Home Builders (NAHB)–at the request of the Home Builders Association of Greater New Orleans and other builder members–commissioned the NAHB Research Center (a wholly owned subsidiary of NAHB) to act as secretariat for an ANSI Accredited Standards Committee and to assemble a group of organization representatives and individuals materially and directly affected by the development of an ANSI Standard for the measurement of square footage in detached and attached single-family houses. The committee held its first meeting on November 22, 1994.

ANSI procedures require periodic review to ensure that standards are current and relevant. In 2001 a standard committee was formed to consider changes to the 1996 edition of ANSI Z765. The committee accepted changes to Section 4 of the standard and to its Annex. The changes to Section 4 consisted of an editorial reorganization of its provisions and the addition of a subsection specifying reporting requirements for calculation results produced using other measurement methods. The changes to the Annex consisted of (1) the addition of a description of decorative finishes for concrete floors, along with recognition of this type of concrete floor as a type of floor finish; and (2) the addition of text acknowledging that the standard does not address differences between calculations made by multiple parties for the same property.

The standard embodies one informative Annex that is intended to comment on and illustrate the standard; however, the Annex is not considered part of the standard.

Suggestions for improvement of the standard are welcome and should be forwarded to the secretariat:

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This standard was processed and approved for submittal to ANSI by the Accredited Standards Committee on Residential Square Footage, Z765. Committee approval of the standard does not necessarily imply that all committee members voted for its approval. At the time it approved this standard, the Z765 Committee consisted of the following members listed in the right column.

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Thomas Kenney, Secretariat–NAHB Research Center

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SQUARE FOOTAGE–METHOD FOR CALCULATING: ANSI Z765-2003

1. SCOPE AND PURPOSE

Scope

This standard describes the procedures to be followed in measuring and calculating the square footage of detached and attached single-family houses.

Purpose

It is the purpose of this standard to describe a method of measurement that will make it possible to obtain accurate and reproducible measurements of square footage in single-family houses.

2. DEFINITIONS

Attached Single-Family House

A house that has its own roof and foundation, is separated from other houses by dividing walls that extend from roof to foundation, and does not share utility services with adjoining houses; may be known as a townhouse, rowhouse, or duplex, for example.

Detached Single-Family House

A house that has open space on all its sides.

Finished Area

An enclosed area in a house that is suitable for year-round use, embodying walls, floors, and ceilings that are similar to the rest of the house.

Garage

A structure intended for the storage of automobiles and other vehicles.

Grade

The ground level at the perimeter of the exterior finished surface of a house.

Level

Areas of the house that are vertically within 2 feet of the same horizontal plane.

Square Footage

An area of a house that is measured and calculated in accordance with the standard. When employing Metric or Standard International (SI) measurement units, the term floor area is used in place of square footage.

Unfinished Area

Sections of a house that do not meet the criteria of *finished area*.

3. CALCULATION OF SQUARE FOOTAGE

To claim adherence to this standard, the following methods of measurement and calculation must be employed when quantifying square footage in single-family houses. When using English measurement units, the house is measured to the nearest inch or tenth of a foot; the final square footage is reported to the nearest whole square foot. When using Metric or Standard International (SI) measurement units, the house is measured to the nearest 0.01 meter; the final floor area is reported to the nearest 0.1 square meter.

Calculation Methods

Calculation of square footage made by using exterior dimensions but without an inspection of the interior spaces is allowed but must be stated as such when reporting the result of the calculation. Calculation of square footage for a proposed house made by using plans must be stated as such when reporting the result of the calculation.

Circumstances can exist when direct measurement of a structure is not possible. Access to the interior may not be available and the nature of the terrain, structure, or other obstacles may preclude direct physical measurement of the exterior in the time available. Building dimensions developed through some means other than direct measurement or plans can be susceptible to inaccuracy, as is the calculated area. Calculation of square footage developed under such circumstances must be identified as such when reporting the result of the calculation.

Detached Single-Family Finished Square Footage

For detached single-family houses, the finished square footage of each level is the sum of finished areas on that level measured at floor level to the exterior finished surface of the outside walls.

Attached Single-Family Finished Square Footage

For attached single-family houses, the finished square footage of each level is the sum of the finished areas on that level measured at floor level to the exterior finished surface of the outside wall or from the centerlines between houses, where appropriate.

Finished Areas Adjacent to Unfinished Areas

Where finished and unfinished areas are adjacent on the same level, the finished square footage is calculated by measuring to the exterior edge or unfinished surface of any interior partition between the areas.

Openings to the Floor Below

Openings to the floor below cannot be included in the square footage calculation. However, the area of both stair treads and landings proceeding to the floor below is included in the finished area of the floor from which the stairs descend, not to exceed the area of the opening in the floor.

Above- and Below-Grade Finished Areas

The above-grade finished square footage of a house is the sum of finished areas on levels that are entirely above grade. The below-grade finished square footage of a house is the sum of finished areas on levels that are wholly or partly below grade.

Ceiling Height Requirements

To be included in finished square footage calculations, finished areas must have a ceiling height of at least 7 feet (2.13 meters) except under beams, ducts, and other obstructions where the height may be 6 feet 4 inches (1.93 meters); under stairs where there is no specified height requirement; or where the ceiling is sloped. If a room's ceiling is sloped, at least one-half of the finished square footage in that room must have a vertical ceiling height of at least 7 feet (2.13 meters); no portion of the finished area that has a height of less than 5 feet (1.52 meters) may be included in finished square footage.

Finished Areas Connected to the House

Finished areas that are connected to the main body of the house by other finished areas such as hallways or stairways are included in the finished square footage of the floor that is at the same level. Finished areas that are not connected to the house in such a manner cannot be included in the finished square footage of any level.

Garages, Unfinished Areas, and Protrusions

Garages and unfinished areas cannot be included in the calculation of finished square footage. Chimneys, windows, and other finished areas that protrude beyond the exterior finished surface of the outside walls and do not have a floor on the same level cannot be included in the calculation of square footage.

4. STATEMENT OF FINISHED SQUARE FOOTAGE

Failure to provide the declarations listed below–where applicable–voids any claim of adherence to this standard.

Rounding

The finished square footage of a house is to be reported to the nearest whole square foot for above-grade finished square footage and for below-grade finished square footage. When using SI units, floor area is reported to the nearest 0.1 square meter.

Reporting of Above- and Below-Grade Areas

No statement of a house's finished square footage can be made without the clear and separate distinction of above-grade areas and below-grade areas.

Areas Not Considered Finished

Finished areas that are not connected to the house, unfinished areas, and other areas that do not fulfill the requirements of finished square footage prescribed above cannot be included in the Statement of Finished Square Footage but may be listed separately if calculated by the methods described in this standard. Any calculation and statement of unfinished square footage must distinguish between above-grade areas and below-grade areas.

Interior Spaces Not Inspected Method

If the calculation of finished square footage is made without an inspection of interior spaces to confirm finished areas, unfinished areas, or openings in the floor, the Statement of Finished Square Footage must include a declaration similar to the following:

DECLARATION 1

"Finished square footage calculations for this house were made based on measured dimensions only and may include unfinished areas, openings in floors not associated with stairs, or openings in floors exceeding the area of associated stairs."

Plans-Based Method

If the calculation of finished square footage is made from the plans of a proposed house, the Statement of Finished Square Footage must include a declaration similar to the following:

DECLARATION 2

"Finished square footage calculations for this house were made based on plan dimensions only and may vary from the finished square footage of the house as built."

Other Methods

Circumstances can exist when direct measurement of a structure is not possible. Access to the interior may not be available and the nature of the terrain, structure, or other obstacles may preclude direct physical measurement of the exterior in the time available. Building dimensions developed through some means other than direct measurement or plans can be susceptible to inaccuracy, as is the calculated area. Calculations developed under such circumstance must include a declaration similar to the following:

DECLARATION 3

"Finished square footage calculations for this house were made based on estimated dimensions only and may include unfinished areas, or openings in floors not associated with stairs, or openings in floors exceeding the area of associated stairs."

COMMENTARY ON ANSI Z765

This standard is not designed for and cannot be applied to the measurement of apartment/multifamily buildings, but it may be employed to measure all detached and attached single-family houses, including townhouses, rowhouses, and other side-by-side houses.

Practitioners of the standard are cautioned to confirm the appropriate legal definition of ownership of the house if applied to detached single-family or attached single-family condominium units to avoid violation of state law. Differences between the method for calculating finished square footage as set out in the standard and methods prescribed by state law to calculate the area of a condominium unit must be resolved on an individual basis. Legal definitions of condominium ownership can be obtained from the state body charged with archiving state law.

The committee chose to use the term square *footage* (instead of *floor* area) because of its common use by producers and consumers of housing.

The methods of measurement and calculation put forth in this standard are not intended or designed to cover the dimensions of rooms within single-family houses. Room dimensions are typically measured between interior finished surfaces rather than between exterior finished surfaces as described in this standard.

The term *habitable space* is often used by established building codes to describe a room or space that has as one of its requirements a specified amount of natural or mechanical light and ventilation sources. The definition of *finished* area–as employed in this standard–does not imply that finished spaces conform to any requirement for light and ventilation.

This standard makes a clear delineation between above-grade square footage and below-grade square footage; no statement of a house's square footage can be made without that clear and separate distinction. Given the above-grade and below-grade distinction and the definition of *grade,* the committee acknowledges that this may result in houses that–depending on topography, design, or grade line–have no calculated above-grade finished square footage derived from the method of measurement employed by this standard. This possible consequence arises from the committee's intent to quantify a house's area while minimizing the likelihood of misinterpretation or misapplication. Houses that are alternatively described as *at grade* or *on grade* are typically considered above-grade houses.

Wall and ceiling finishes include but are not limited to painted gypsum wall board, wallpaper-covered plaster board, and wood paneling. Floor finishes include but are not limited to carpeting, vinyl sheeting, hardwood flooring, and concrete floors with decorative finishes but do not include bare or painted concrete.

Decorative finishes are long-lasting or permanent components of the slab produced by such methods as chemical staining, integral coloration of the concrete, scoring, or stamping that modify the texture or appearance of the slab.

For a room to be included in the square footage calculation, the floor located under sloping ceilings must have a clearance of at least 5 feet (1.52 meters); further, at least one-half of the square footage in the room must have ceilings of at least 7 feet (2.13 meters) in height. For example, a one-and-one-half-story, 28 by 42 foot Cape Cod-style house has a first level with a ceiling height of 8 feet. On the second level, the ceiling has a maximum height of 9 feet but a minimum height of 4 feet at the walls as the ceiling slopes to match the pitch of the roof. All areas are finished. While the first level has 1,176 above-grade finished square feet, only that portion of the second level meeting the ceiling height requirements described above is included in the square footage calculation.

Where finished and unfinished areas are adjacent on the same level, finished square footage is calculated by measuring to the exterior edge or unfinished surface of any interior partition between the areas. For partitions between a finished area and a garage (usually a fire-rated wall), the measurement is made to the surface of the gypsum wall board on the garage side of the partition. For a partition that separates a finished area from an unfinished area (often not a fire-rated wall), the measurement is made to the portion of the partition closest to the unfinished area–usually a wood stud or other framing member.

Porches, balconies, decks, and similar areas that are not enclosed or not suitable for year-round occupancy cannot be included in the Statement of Finished Square Footage but may be listed separately, measured from the exterior finished surface of the house to the outer edge of the floor surface area or exterior surface, and calculated by using the method referenced in the standard.

The treatment of garage area in the standard allows practitioners to apply local customs. While garages can never be included in finished square footage, the standard does allow the area to be included in unfinished square footage. In the diagrams that accompany this standard, Figure 1 largely shows the garage (and the adjoining laundry) as a structure attached to the main body of the house. As such, the garage is not typically treated as an unfinished area of the house but rather as a separate area simply referred to as "garage." However, if the garage is located beneath the main body of the house, some localities treat the area as part of the house and contributing to unfinished square footage. Practitioners are urged to heed common local convention with regard to garages.

Finished areas above garages are included in the finished square footage that is at the same level in the main body of the house, but only if they are connected to the house by continuous finished areas such as hallways or staircases.

Exterior finishes include but are not limited to masonry or masonry veneer; wood, aluminum, or vinyl siding; or gypsum wall board when used on the exterior wall common to an attached garage.

Protruding areas beyond the exterior finished surface of the outside walls–such as chimneys and windows–cannot be included in finished square footage unless the protrusions have a floor on the same level and meet ceiling height requirements. For example, a hearth that is within the exterior finished surface is included, as is a window that extends from floor to ceiling. Further, if the hearth is on the first level and the chimney extends through the interior of the second level without a hearth on the second level, no deduction is made from the finished square footage of the second level. However, if the hearth or chimney is located beyond the exterior finished surface or the window does not have a floor, the area cannot be included in the finished square footage.

A common construction practice is to provide a floor opening for stairs that is the same size as the stairs themselves. Therefore, the area of stairs included in finished square footage is typically equal to the area of the opening in the floor. For example, a two-story, 28 by 42 foot house embodies 1,176 finished square feet on the first level and 1,176 finished square feet on the second level, provided that all areas are finished and the opening in the floor of the second level does not exceed the area of the stair treads. Further, stairs that descend to an unfinished basement are included in the finished square footage of the first level regardless of the degree of finish of the stairs or the degree of finish of the area around the stairs. In addition, areas beneath stairs are included in the finished square footage regardless of the distance between the stairs and the floor below or of the degree of finish of that area.

The standard makes no statement concerning differences between square footage calculations made by multiple parties for the same property. The method for calculating square footage requires measurements to be taken to the nearest inch or tenth of a foot using English measurement units or to the nearest hundredth of a meter using the Metric system. The final floor area must be reported to either the nearest square foot or tenth of a meter, as appropriate.

Examples

An example of a Statement of Finished Square Footage of a detached single-family house with basement follows:

DECLARATION 1

"A 28.2 by 42.5 foot two-story detached single-family house with 2,201 above-grade finished square feet and 807 below-grade finished square feet, plus 96 above-grade unfinished square feet in a utility room and 392 below-grade unfinished square feet in a basement. The first level has a 100-square-foot two-story space. In addition, the property includes a 240-square-foot enclosed porch and a two-car garage."

An example of the square footage description of a two-story attached single-family house follows:

DECLARATION 2

"A 22.1 by 30.9 foot two-story attached single-family carriage townhouse with 1,366 above-grade finished square feet and 176 above-grade unfinished square feet in a utility/storage room. In addition, the property includes a 120-square-foot deck and a one-car garage."

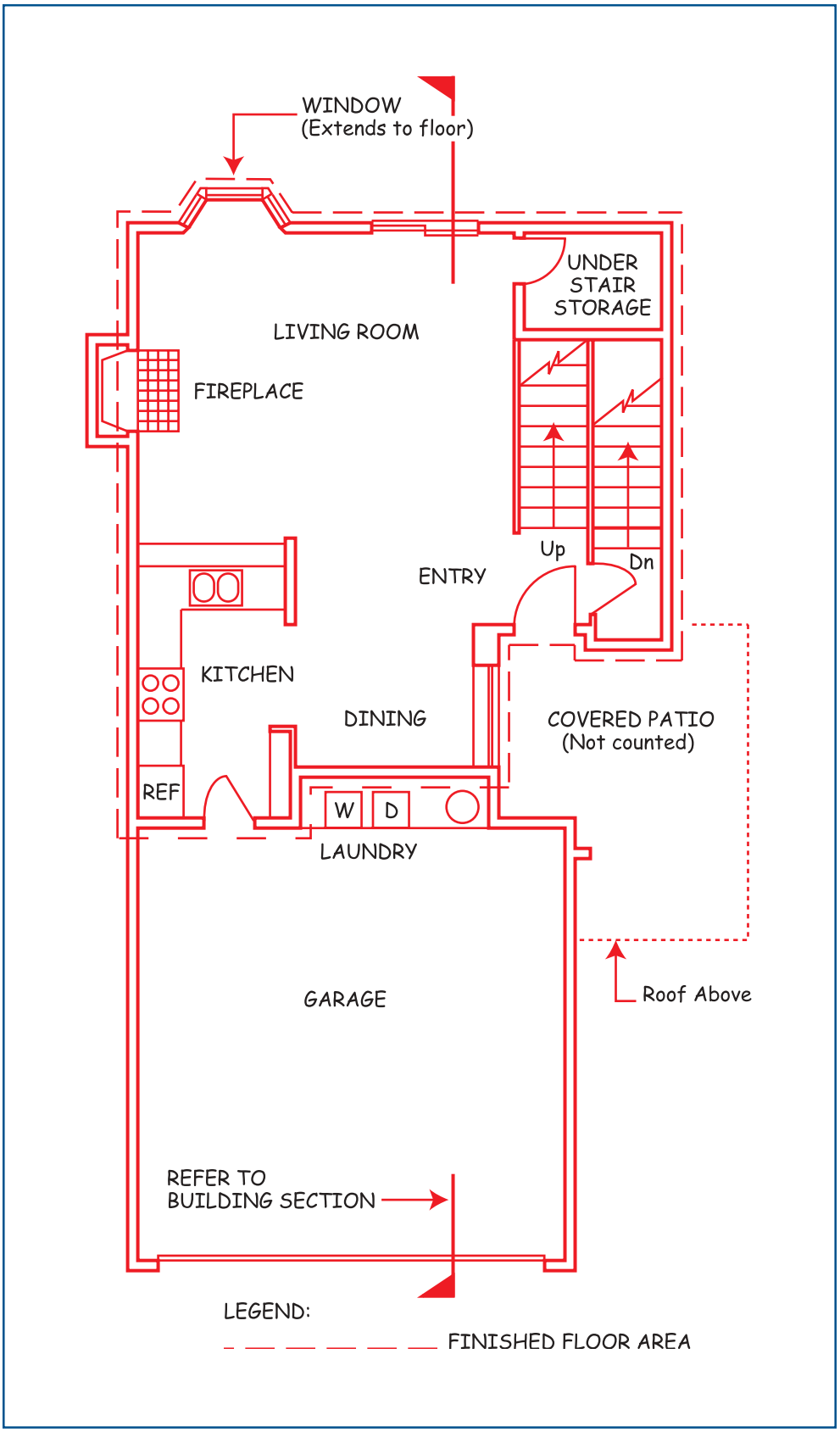
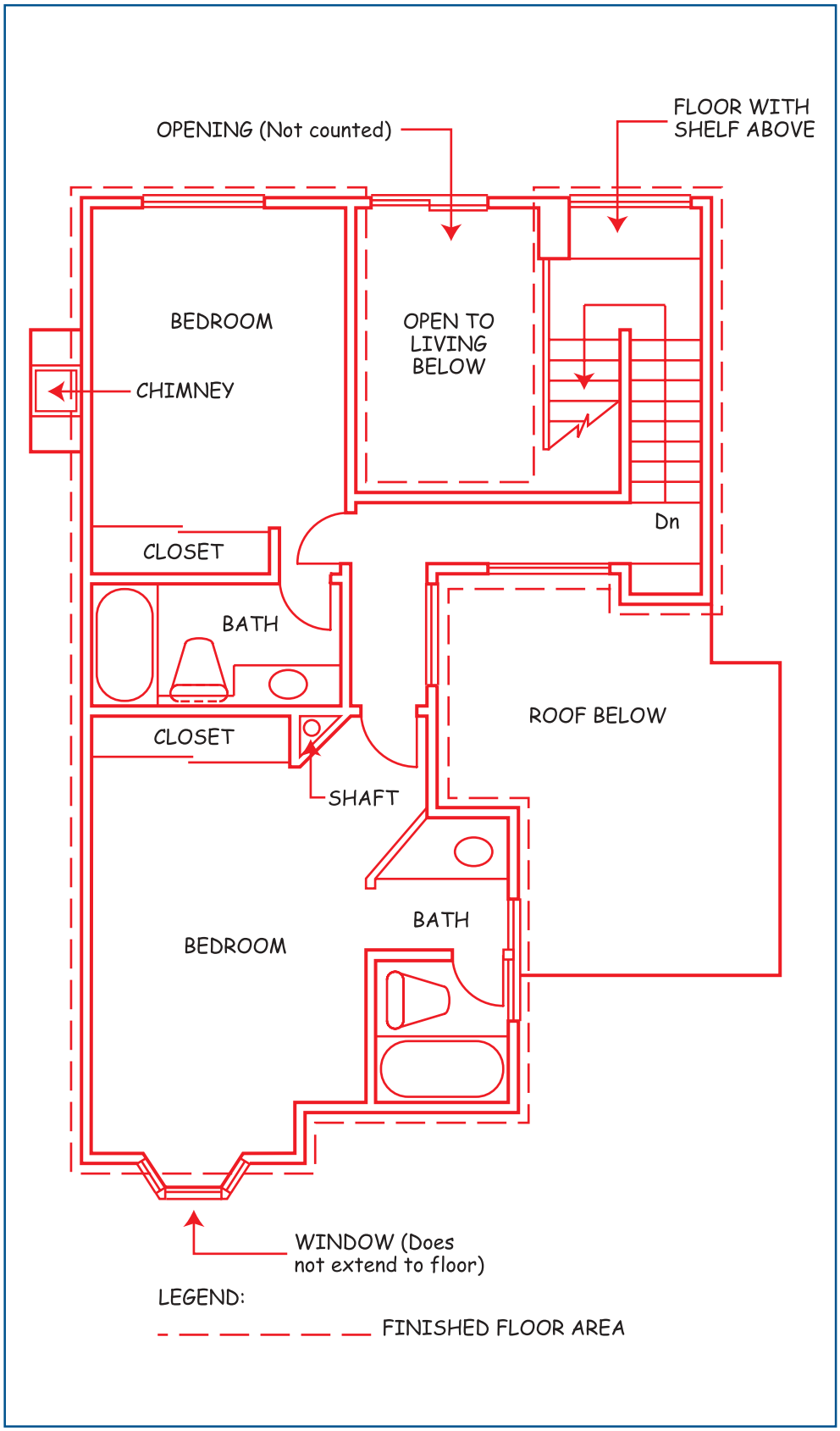


FIGURE 1.

Entry-Level Plan
(above grade)

Figures 1 through 4 depict a two-story single-family house with basement. The entry and upper levels are entirely above grade and the basement is entirely below grade. The dashed line encircles the finished floor area that is counted as above-grade finished square footage and below-grade finished square footage. As shown, the upper-level plan has an open foyer and a protruding window that does not extend to the floor; neither area contributes to the square footage of the upper level. The calculated finished square footage of the entry level does not include the protruding fireplace, covered patio, garage, or unfinished laundry. The finished area of the basement is counted toward the below-grade finished square footage in its entirety, including the area under the stairs that descend from the entry level. The area of the unfinished utility room is calculated by using the method prescribed in the standard but is not included in the below-grade finished square footage.

FIGURE 2.
Upper-Level Plan
(above grade)



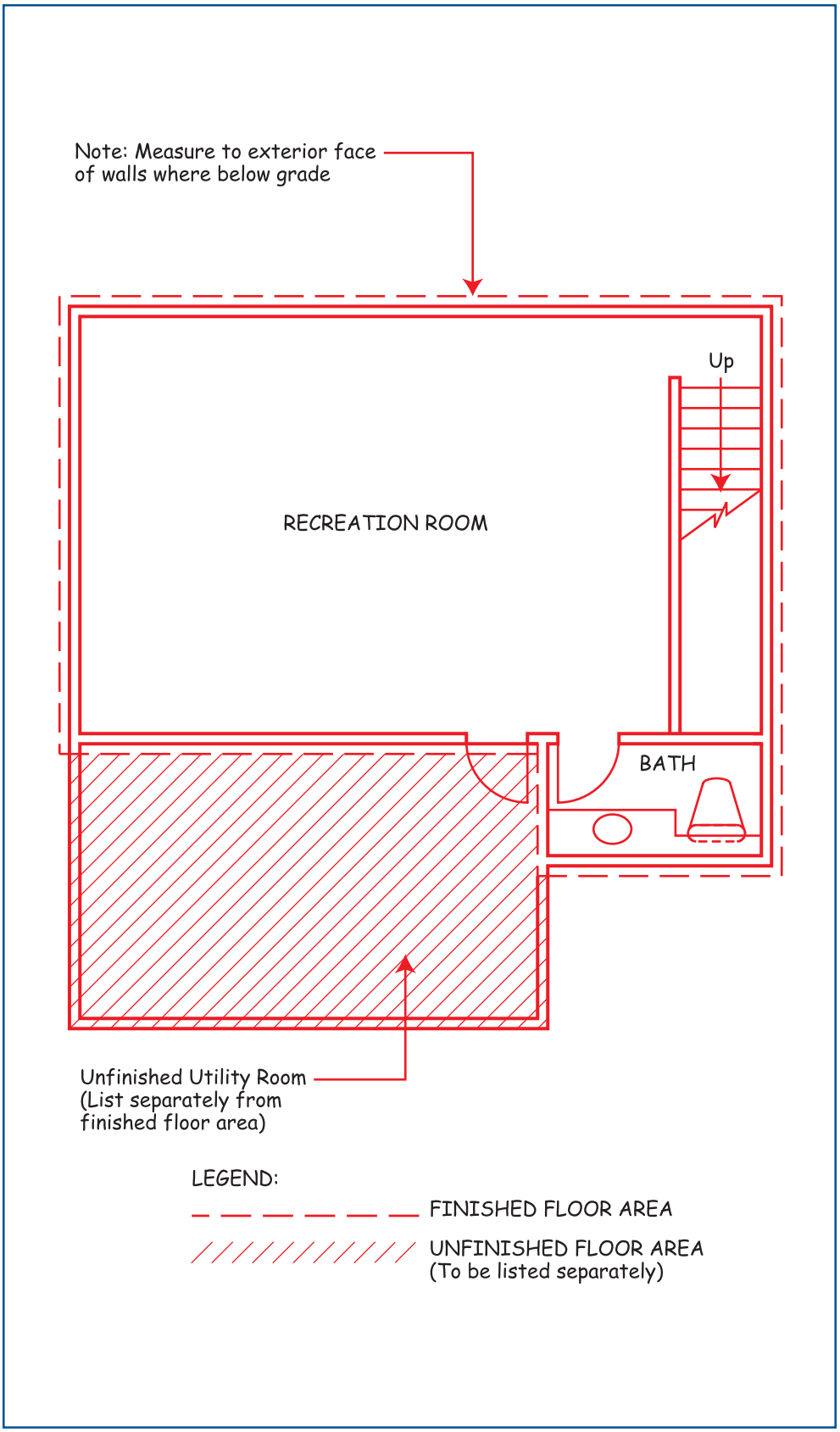


FIGURE 3.
Basement Plan (below grade)

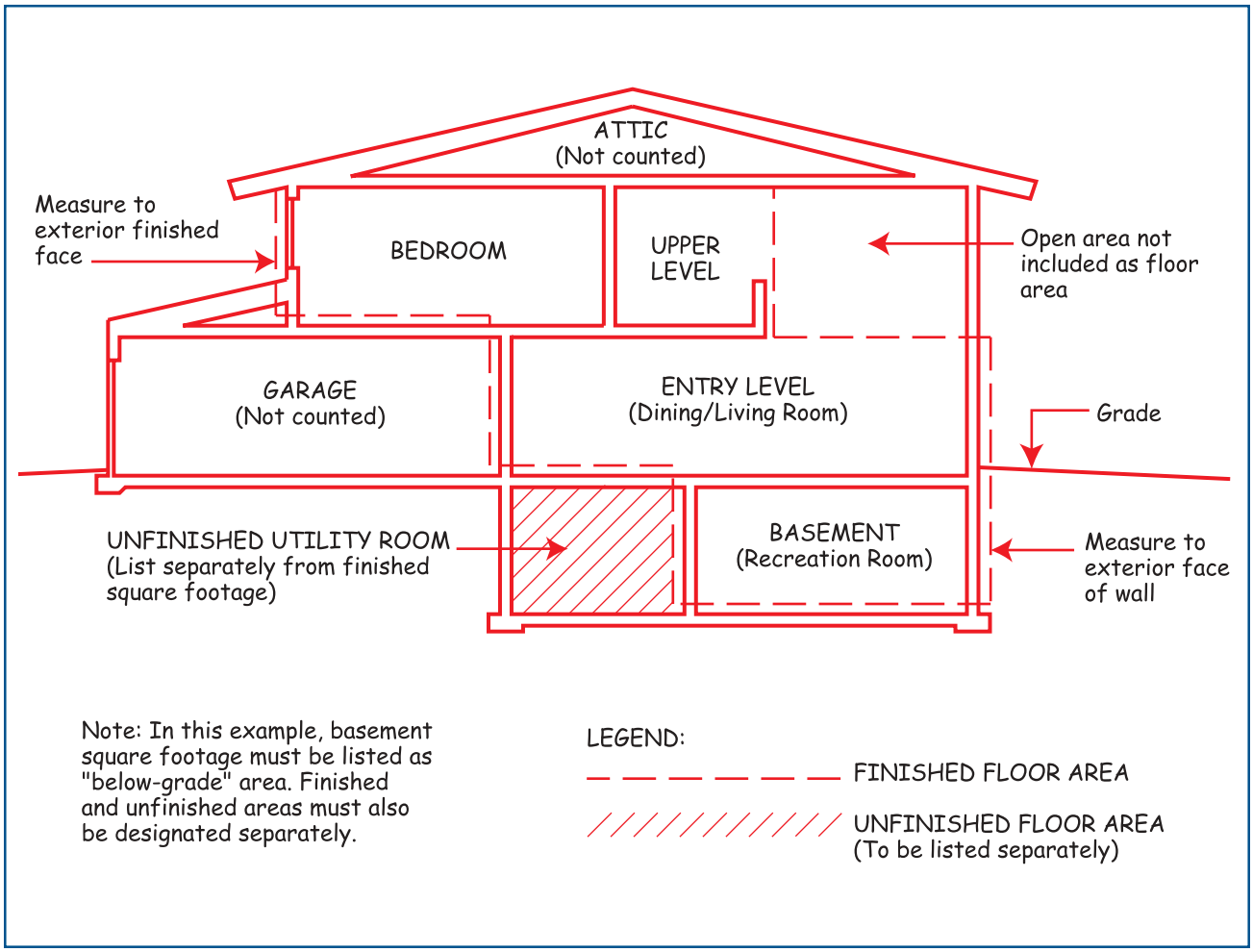


FIGURE 4.
Building Section

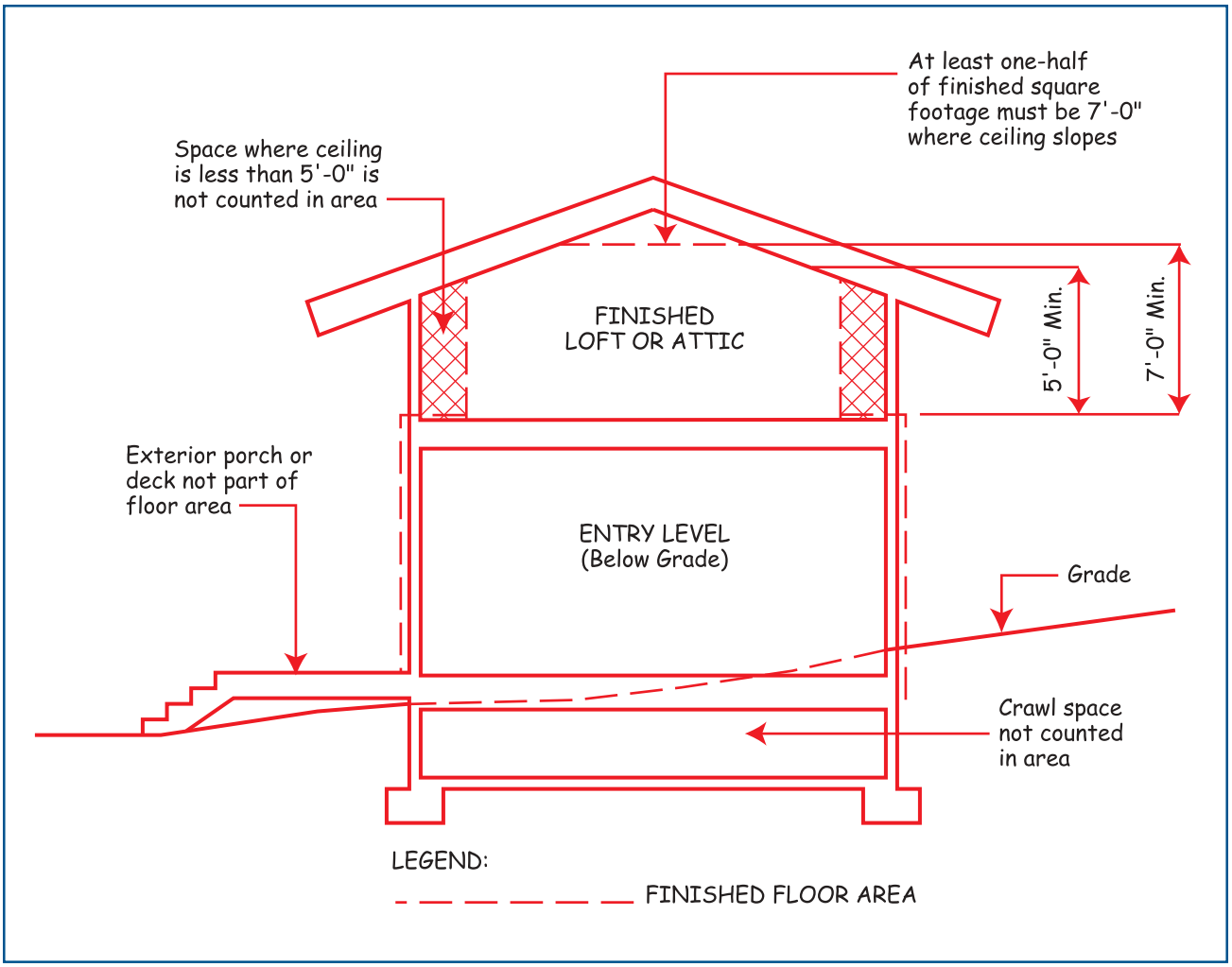


FIGURE 5.
Building Section

Figure 5 presents the building section of a one-and-one-half-story house with a partially below-grade entry level. The area in the finished loft/attic counting toward the finished square footage of that level has a ceiling height of at least 5 feet (1.52 meters), and at least one-half of the finished square footage has a ceiling height of at least 7 feet (2.13 meters). The entire area of the entry level is considered below-grade finished square footage.

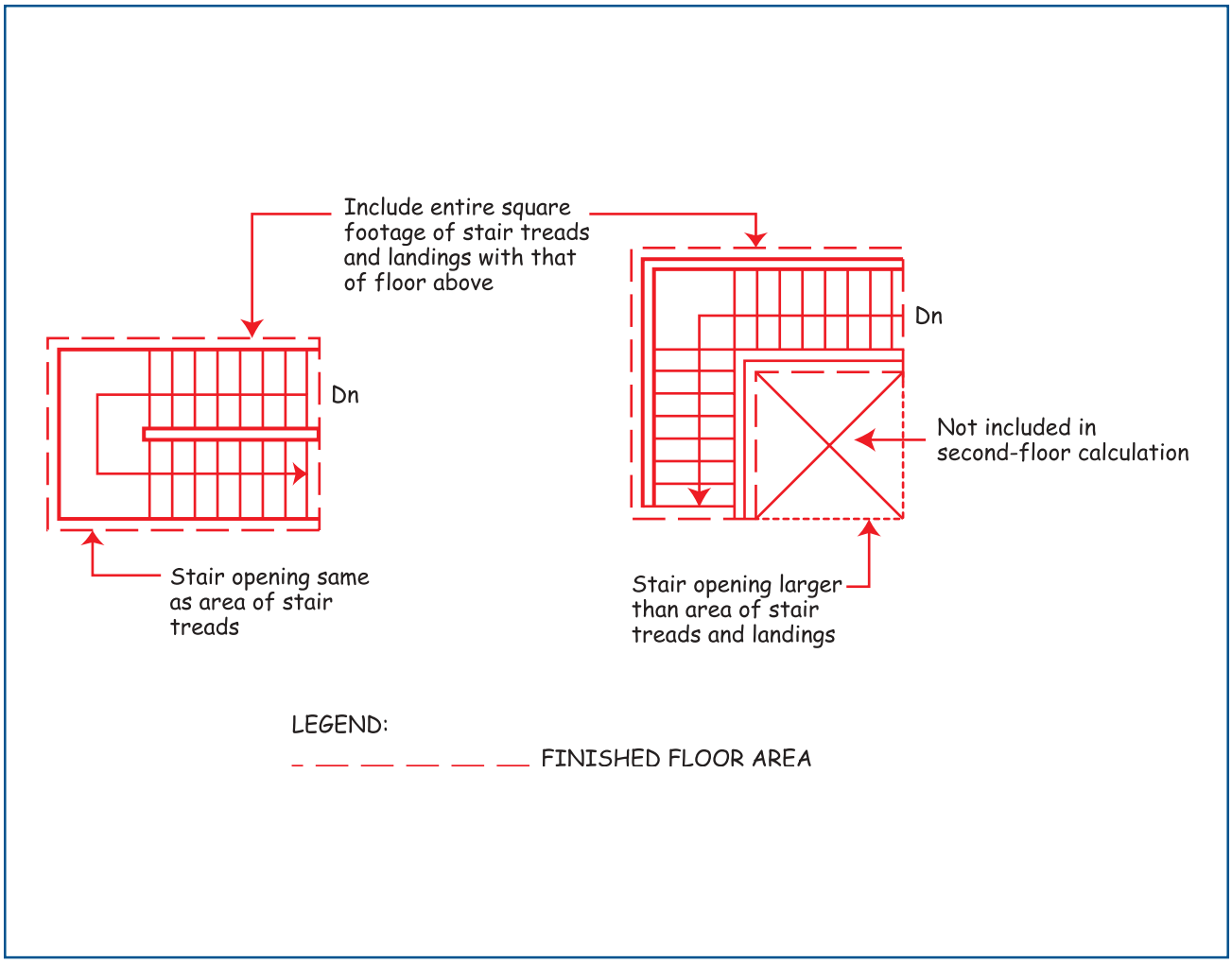
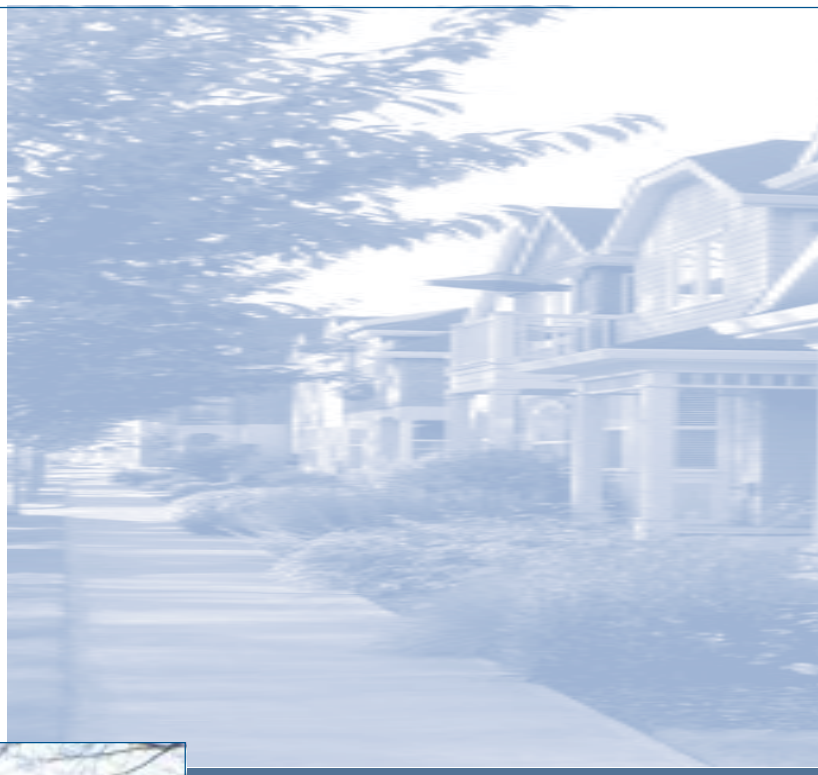


FIGURE 6.
Stairs

Figure 6 demonstrates two typical stair configurations. Viewed from above, the stair treads and the landing in the drawing on the left fill the entire opening through which they descend. By definition, the area of the stairs and landing (or, by interpretation, the area of the opening) is included in the square footage of the level above. In the drawing on the right, the stair treads and landing merely skirt the opening. Here, the area of the treads and landing must be calculated to be included in the upper-level square footage; the remaining area of the opening is not included.



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