How Big Is a House?

A guide to how builders, brokers, appraisers, and others calculate a building's square footage

by Steve Carlson

How big is a 2,000-square-foot house?

Square footage is a standard part of almost any description of a house. It appears in construction and remodeling estimates, sales literature, and professional appraisals.

But how are the measurements taken? The square footage of a house is usually *not* a measure of floor area or interior living space. If a family is shopping for a house, or choosing among house plans, the published square footage can be a poor — even deceptive — indicator of size.

Therefore, it's important to precisely define your terms when describing the measurements of a house (or any other building). Square footage of what?

Appraisal Systems

The standards for measuring square footage are set by the professional appraisers who estimate replacement and market values of structures for banks, insurance companies, and property tax collectors.

The rest of us tend to copy their systems, for good reasons. Suppose you've built a spec house, and tell a prospective buyer that it's a 2,000-square-foot house. The buyer, who needs a mortgage loan, arranges for a bank appraisal. If the appraiser says the house is only 1,920 square feet, your credibility may be challenged. If the appraiser says it's 2,180 square feet, your asking price may have been too low. So your incentive is to measure square footage in the same ways appraisers do.

But appraisers do not compute square footage for the purpose of describing the amount of elbow room available to the occupants of a house. For them, square footage is merely one factor in a complex formula to estimate market value.

There are many different appraisal systems, but the one that is probably most widely used in the U.S. is the Marshall Valuation Service, usually referred to as "Marshall and Swift," the name of its Los Angeles-based publisher.

The Marshall system of measuring square footage is fairly simple. Measure each exterior wall from the outside. Just hook the tape on one corner of the siding and take it to the next. These measurements should include only enclosed, finished living space — not porches, garages, or sheds. Chart the dimensions on graph paper, and compute the square footage of the first story. If the building has more than one above-grade story, multiply by the number of stories.

The basement and any additional unfinished spaces such as porches or garages are measured separately and add to the appraised value, but do not affect the square footage of the house itself.

The system is extremely arbitrary. For example, the lower level of a raised or split-level ranch does not add to the base size of a house, even if it is beautifully finished. A finished attic on the other hand, does add to the square footage. The difference is that the attic is above grade.

Every other appraisal system that I have seen uses the same basic method for determining the size of a structure. Nothing is deducted for thickness of walls, interior partitions, stairwells, closets, or any other space that the average home buyer may not think of as living space.

Likewise, nothing is added for some of the features that a home buyer might regard as living space — such as a walk-out basement or large sleeping loft.

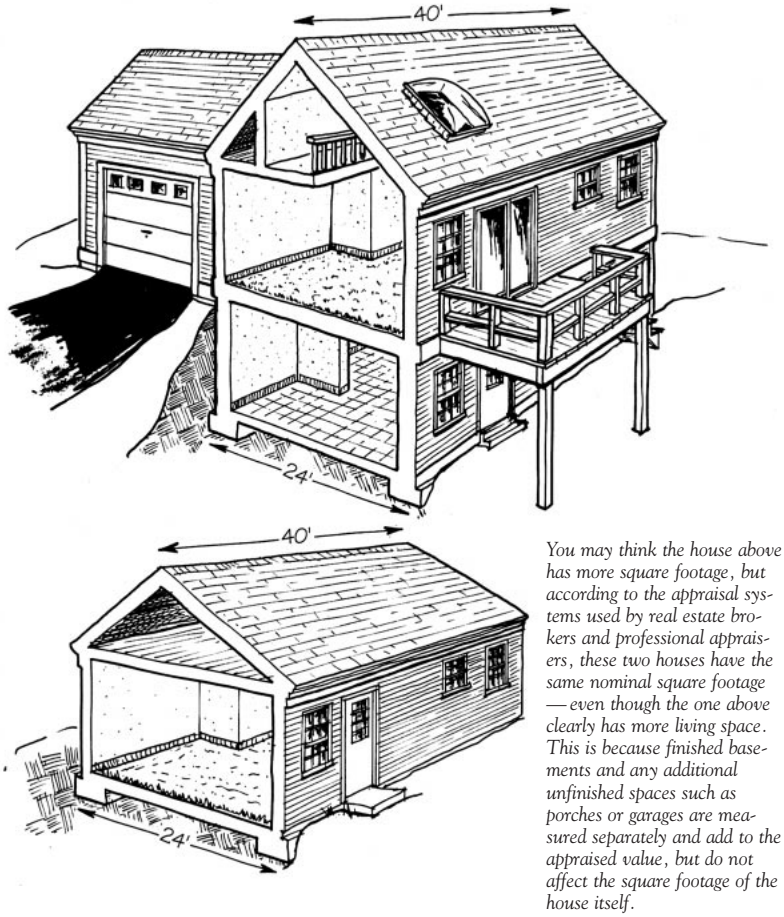
This arbitrary system of measurement works for appraisers, because the square footage is only one part of the formula they use. The type and quality of construction, materials, and design, the ceiling height, any additional or missing features, and neighborhood characteristics are also entered into their computations to estimate replacement cost and market value.

Methods of Real Estate Brokers

Real estate brokers often serve as appraisers, and use the same formulas to estimate the value of a house. But most of them recognize that the nominal square footage of a house is not always a good description of its size for a potential buyer.

There are no national standards for use by real estate brokers. Ditto for

Which house is larger?



You may think the house above has more square footage, but according to the appraisal systems used by real estate brokers and professional appraisers, these two houses have the same nominal square footage — even though the one above clearly has more living space. This is because finished basements and any additional unfinished spaces such as porches or garages are measured separately and add to the appraised value, but do not affect the square footage of the house itself.

builders: According to Dick Morris, senior technical advisor to the National Association of Home Builders, "there's no single answer" to the question of how square footage is measured.

But Morris and several real estate professionals whom I interviewed for this article agreed that there are widely accepted conventions and practices, which are based on professional appraisal systems.

The insulated, finished space, measured from the exterior, is the base size of a house for a real estate broker, as it is for an appraiser. The broker, in describing the house to a potential buyer, usually describes this base size as "primary living space."

A garage, a screened-in porch, or an unfinished attic does not add to the primary living space. But of course, the garage can be measured separately, and its size listed in the sales literature for the house. If the garage is attached, the thickness of the common wall adds to the size of the primary living space, not the garage.

Below-grade space is always excluded. One real estate agent I talked with, Hilda Hendrickson, of Hendrickson Associates in Shelburne, Vt., acknowledged that this system discriminates against a "hillside ranch with a finished, walk-out basement. The basement may be the best living space in the house, but can't be included in the basic square footage," says Hendrickson.

Likewise, a loft is not counted as primary living space. Not even a big loft with room for a bed, a desk, a computer, and a stereo. Finished basements and lofts can be listed separately, as "other than primary living space," or words to that effect.

In describing the size of a house to a potential buyer, the basic size is the square footage that would be measured by a professional appraiser. But after admitting that the house has only 1,300 square feet of "primary, above-grade living space," it's fair to add that it also has a 1,000-square-foot finished basement that can serve as an elegant master bedroom.

Kneewalls and Partial Stories

Measuring square footage can become more complex in a structure such as a cape, in which the upper story is smaller than the first floor.

Keep in mind that the basic square footage includes only finished space. So if you have an insulated kneewall on the upper story, which separates living space from storage space, the common method used by appraisers would be to measure from the outside of the kneewall.

But what if the entire upper story is finished? The perimeter of the upper story may be as large as that of the first floor, but its use as living space is restricted by lack of height. You can't put a couch, let alone stand up, next to an inch-high wall.

Appraisal systems differ in accounting for areas that do not allow ample headroom. During a brief period when I assessed houses for property taxes in my town, we used a system in which an outside wall less than 6 feet in height rendered the story a "half" story. This struck me as being pretty arbitrary. If you have a shed roof and a cathedral ceiling, with walls that range in height from 5 feet 11 inches to 18 feet, you have, functionally, a full story unless the house is occupied by basketball players. But rules are rules, and nobody ever complained. For property tax assessment, people prefer that their houses be listed as smaller than they are.

Similar rules are described in the tax assessment manuals of several other states, although the cutoff point in some is 4 feet rather than 6.

Even these systems vary in how a half story figures into the assessment formula. Some formulas compute the full dimensions, but with a lower value per square foot. Others reduce the nominal square footage. Therefore, two appraisals might differ substantially in measurement of square footage, even though — at least theoretically — they should end up with the same estimate of market value.

Appraisers take into consideration ceiling height as well as square footage. Under the Marshall system, for example, a low kneewall will reduce the "effective" ceiling height, thereby reducing the value per square foot. If the sloped ceilings are architecturally attractive, the formulas will add back some or all of that value. If it's a low-cost type of construction (such as an A-frame, for instance), the square footage will be reduced dramatically.

The Marshall system also offers an alternative procedure under which cubic feet, rather than square feet, can be measured in buildings with odd-shaped roofs. However, the manual acknowledges that this option is rarely used, because the calculations are more complex and the derived value is the same.

Realtors and developers tend to reduce their computations of primary living area when headroom is low, but they do not all use the same methods.

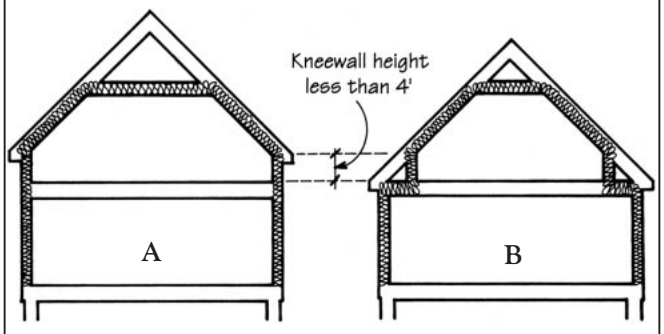
Hilda Hendrickson says she makes a percentage reduction — often as much as 50% — in square footage of a story without full headroom. Realtor/developer Richard Farnham of Farnham Associates, in South Burlington, Vt., says he measures from the line "where the ceiling drops below 4 feet." Anything inside that line is considered primary living space, and anything outside is not.

Dick Morris, of NAHB, agrees that the 4-foot cutoff is appropriate. He comments, "If the walls are over 4 feet high, I would include the full area in the measurement. You can fit a lot of furniture next to a 4-foot-high wall."

The 4-foot rule is probably a safe one to follow, and will usually produce a larger number of square feet than you will get from a percentage rule. But if the building has 16 dormers, the 4-foot line can take a complex shape, and the math can become unwieldy.

Low ceiling height is the only issue that seems to lead to disagreement among real estate professionals regarding measurement of square footage. Two competent professionals, accurately measuring a cape, may list the base size differently. But all agree that any area that is excluded from "primary living space" because of a low ceiling should be listed separately as other useful space.

Measuring Capes & Half Stories



Measurement systems vary in accounting for areas with reduced headroom. If the bank appraiser and builder use different formulas, they may come up with different building values.

For example, some bank and tax appraisers reduce the upper floor area by up to 50% (compared with the first floor) if a kneewall is less than 4 feet. Note that both houses above are rated the same size using this formula, although house A has more usable floor area than house B.

Real estate agents and developers, on the other hand, usually use the simple rule that counts all the finished floor space up to the point where the ceiling height drops to a given height — typically 4 feet. In this case, house A will be larger than house B.

Condominiums and Apartments

As with detached houses and other buildings, condominiums and apartments are measured from the exterior.

The one caveat is that the sizing of apartments and condominiums must take into account common walls. The full thickness of a common wall cannot be added to the dimensions of more than one unit.

Therefore, according to Farnham, measurements are taken "to the centerline" of any common wall.

Leased Commercial Space

There is a major exception to the practice of computing square footage with exterior measurements.

In the leasing of office space, or other commercial space within a larger building, measurements are taken from the inside. The procedures are detailed in the American National Standard (ANSI Z65.1), more commonly referred to as the BOMA standard, after its chief sponsor, the Building Owners and Managers Association International.

BOMA provides specific ways to compute square footage in four categories:

- ***Usable area,*** or the actual occupiable area of a floor or office suite.
- ***Rentable area,*** or the entire interior measurement of the story, including corridors, etc. (Any elements of the building that penetrate through the floor areas below, such as stairwells, are excluded.) This measurement is used to help compute each tenant's pro-rata share of a building for the purpose of rent escalation. It is also sometimes used by lenders, architects, and appraisers for analysis of the economic potential of a building.
- ***Store area,*** or the ground-floor rentable area that is usable as store space.
- ***Construction area,*** or the square footage of an entire building. This method of measurement is used primarily to determine construction cost value. BOMA recommends that it not be used for leasing purposes, unless the entire building is leased to a single tenant.

In short, if you are building a large commercial structure, you can describe the square footage of the

whole building by taking the exterior measurements. But you can't translate that figure directly to usable area, rentable area, or store area. Those measurements must be taken from the interior, under procedures specifically prescribed by BOMA.

Square Footage of Rooms

Room sizes are also usually measured by builders from the inside. That's for practical reasons, not because of prescribed standards. If you're installing a 5-foot bathtub, you need at least a 5-foot wall measured from the interior surface, not the centerline. Similarly, measurements for cabinets and appliances must, of course, be based on the interior dimensions of the kitchen. In estimating the cost-per-square-foot to remodel a room, most contractors use the same measurements that they use in their work. The thickness of the walls is usually not considered square footage.

As a result — though the logic might be more appealing to poets than to homeowners — a house is generally larger than the sum of its rooms.

Conclusions

To a prospective homeowner, size is an important consideration. But square footage can be an unreliable means of comparing the actual living space in two structures.

The methods used by appraisers to determine square footage have, unavoidably, been adopted and adapted by contractors, developers, and real estate brokers.

In response to the question that introduced this article — if you compare two 2,000-square-foot houses, one might have a lot more real living space than the other.

One might have a large open space over the first story, allowing an expansive view of the second-story cathedral ceiling. Impressive? Perhaps. But it will reduce the usable space on the second floor, without reducing the nominal square footage of the house.

A raised or split-level ranch with a fully-finished lower story may have nearly twice as much usable space as a standard ranch built on a slab with the same exterior perimeter. But the nominal square footage will be the same.

In a temperate climate, a screened-in porch may add valuable living space to a house much of the year, but won't add to the nominal square footage of the house. Unfinished space, such as a garage-workshop, can also add to real living space, because it can accommodate storage and activities that would otherwise usurp finished areas of the house. Similarly, a homeowner who feels cramped in a 1,300-square-foot condo may assume that a 2,000-square-foot house will have oodles of extra space. Maybe it will, but maybe it won't.

To avoid confusion, be careful in how you use the standard square-footage figures in describing a house, or house plans. It's not floor space, because the figure won't match the measurements of the floor surfaces. It's not really living space, because the only life-forms inside walls are ants and mice. But since real estate brokers have adopted the term "primary living space," that's probably the best description to use. It will allow your client or buyer to make an apples-to-apples comparison with the "primary living space" of other houses or plans.

Then, after announcing the square footage of "primary living space," don't pause for a breath before listing the other features that add to real living space. ■

Steve Carlson, of Hinesburg, Vt., is a freelance writer and frequent contributor to JLC. *He served recently as tax assessor for his town.*