

How Much Will It Cost?



An architect's **reality checklist** helps you to project the **true costs of a new home or remodel** before it gets to the drawing board

BY JOHN McLEAN

How much do you think it will cost? The question is entirely reasonable, and it comes at the end of just about every preliminary discussion I have with a client about a new house or a remodeling project. The answer is key to assessing a project's feasibility, and my answer is always delivered with equal parts caution and trepidation. At this stage, before any of the plans have been drawn, my clients still want a realistic ballpark number to contemplate. I want to emphasize the word *realistic*.

A frequent complaint I hear from good contractors is that clients have been given unrealistic ideas about the cost of residential construction. The information may have come from newspaper and magazine articles about projects in other parts of the country, or from friends sharing cost data about past projects that may not be comparable. Experienced architects and contractors know that comparing projects can be dangerous. Projects that appear similar at first often prove to be quite different due to unique site conditions, special design requirements, and owner preferences.

To help get an early budget picture, I've developed a checklist that includes 27 cost-impacting items. Filling out the checklist gives my clients a ballpark square-footage price for their project (see "The Checklist: How to use it," right).

Calculate the size of the project

Once you've arrived at a projected price per square foot, you need to multiply it by the total floor area of each space included in the work. In the case of remodels, it is important to include the areas of adjacent rooms and secondary spaces, such as hallways, stairways, utility rooms, and closets, that may need to be modified along with the main spaces. If there are exterior stairways, decks, or garages, include only half of their total area in the project size (they will cost less to build). For initial cost projections such as these, the costs of building new space and renovating existing space are assumed to be the same.

These figures are based on my own experiences with reputable, good-quality builders, and on information I have received from other established architects and contractors here in the San Francisco

Bay Area. I prefer to err on the conservative side, but not by a large amount.

By the way, the San Francisco Bay Area is among the most expensive places in the country for residential construction. To learn how to adjust the numbers to reflect costs in other regions better, please refer to the sidebar on p. 93.

This early budget review serves its purpose for most of my clients. Because the checklist is geared to West Coast climate and construction methods, I encourage people in other parts of the country to customize it to suit their situations. □

John McLean is an architect based in San Francisco. Photos by Roe A. Osborn, except where noted.

THE CHECKLIST

HOW TO USE IT

The checklist consists of three charts. Each focuses on a major chapter in a construction project, from site work to interior finishes. Each chart includes a list of items that will impact the cost of a project. For each item in the left-hand column, five project levels are listed in the adjacent columns. They progress from the simplest construction and lowest-quality materials to the most complex construction and highest-quality materials. Highlight the choice that most closely matches your site conditions and design preferences. Total the number of choices in each column, and move on to the next chart. If a construction term is unfamiliar, skip it until you can get an explanation of the options. Your selections likely will be in several columns. If an item doesn't apply, such as earthquake resistance, don't highlight it.

To illustrate the checklist in action, I've highlighted items for a typical project here in San Francisco: a 1200-sq.-ft. remodel that includes a second-story addition, two bedrooms, a study, two bathrooms, and a remodeled kitchen.



SITE WORK AND FOUNDATION

Site location

Building in urban areas is more expensive than other settings because it's tough to park and difficult to schedule deliveries.

Site topography

Steep sites or wetlands limit material-delivery and storage areas, and make moving materials difficult.

Site soil conditions

The soil type and its ability to drain can have a major impact on foundation type and size. Poor soil needs a large foundation to spread loads.



EASY AND INEXPENSIVE

HARD AND EXPENSIVE



Site work

A level or near-level site allows the use of a simple, low-cost foundation. A steep site requires a more elaborate type of foundation.

Site paving

This category includes driveways, paths, stairs, and terraces. Asphalt and crushed stone are the budget-conscious choices. Upgrades include concrete, stone, or ceramic tile.

Building demolition

If demolition work is relatively easy (like nonbearing stud walls covered with drywall), its cost will not be significant. When demolition work is difficult, such as removing reinforced concrete, prices rise.

Item	1	2	3	4	5
Site location	Easy access, parking, and material storage	Easy access and parking; limited material storage	Limited access, parking, delivery, and material storage	Restricted parking, delivery, and material storage	Difficult access, parking, delivery, and material storage
Site topography	Flat	Slight slope	Moderate slope	Hillside	Steep slope; mountainous
Site soil conditions	Good soil for support and drainage	Good soil for support	Marginal soil for support/drainage	Deep supporting soil layer	Solid rock or expansive clay
Site work	No grading or site-drainage work	Minimal regrading to improve drainage	Moderate grading/drainage work; low wood retaining walls	Extensive grading/drainage work; concrete-block retaining walls	Extensive grading/drainage work; poured-concrete retaining walls
Site paving	No site paving	Minimal walk paving	Walk and patio paving	Walk and driveway paving	Walk, driveway, terrace paving
Building demolition	Little or none	Limited; mostly interior walls and ceilings/soffits	Moderate; above-grade construction only	Extensive; above-grade construction only	Extensive; above-grade and foundation
Condition of remaining construction	Very good; no work needed	Good; only minor repairs and refinishing needed	Fair; limited dry-rot repair and refinishing needed	Minor foundation and limited dry-rot repair needed	Extensive foundation and dry-rot repair or replacement
New foundation construction	Concrete slab with thickened perimeter	Spread footings with low concrete-block walls	Spread footings with low poured-concrete walls	Pier and grade beam	Pier and grade beam with poured-concrete retaining walls
Earthquake resistance	Building-code minimum requirements	Plywood shear walls	Plywood shear walls and metal framing connectors	Steel moment frame at lower level and plywood shear walls above	Steel moment frames and other structural-steel fabrications
Subtotal	2	0	5	1	1

Condition of remaining construction

The condition of an existing building's foundation and framing can be difficult to assess before removing the surface materials, such as siding and shingles. Unpleasant surprises are common, especially in older houses.

New foundation construction

Soil type, climate, and slope affect foundation design. The simplest are on flat sites in warm climates with soil that doesn't compact. At the other extreme are steep sites in cold climates, requiring piers or perhaps retaining walls.

Earthquake resistance

In earthquake-prone areas, codes require that a home's structural parts be well connected to one another. Hurricane areas have similar rules. The more complicated the house, the more expensive it is to comply.

CHART 2

BUILDING SHELL AND EXTERIOR FINISH



EASY AND INEXPENSIVE

Ground-floor construction

A slab floor on a flat site is the least expensive floor you can build, followed by a crawlspace foundation with wood framing. Full-height basements cost more, but the resulting usable space can far outweigh the extra expense. In colder parts of the country, where footings are deep to avoid freezing, basements make even more sense.

Exterior-wall construction

The cost of building straight, 8-ft.-tall wood-frame walls is the baseline against which other wall framing is measured. Recently, the production-housing industry has started building more homes with taller ceilings. Labor costs are similar, but materials cost more. As variations in wall height increase, fewer walls can be built using standardized assembly steps, thus lowering framing efficiency. Curved walls are more complicated and pricey.

Exterior-wall finish

The least expensive wall finish does double duty as sheathing and finished surface. Material choices are limited to plywood and similar panel products that are rated for exposure to the elements. When the sheathing and the finish are separate elements, such as plywood covered by shingles or lap siding, wall cost increases. Brick and stone finishes are among the most costly to install because material and delivery costs are high and because installation must be done carefully by experienced masons.

1

2

Item	1	2
Ground-floor construction	Slab on grade	Single-level joists over minimum-height crawlspace
Exterior-wall construction	Straight stud walls supporting 8-ft.-high ceilings and flat or gable-roof framing	Straight stud walls supporting 9-ft.- to 10-ft.-high ceilings and flat or gable-roof framing
Exterior-wall finish	Stained/painted exterior plywood; wood trim at doors, windows, and corners	Stucco on front wall; painted wood or fiber-cement siding elsewhere; wood trim at doors, windows, and corners
Exterior doors	Brushed-aluminum sliding-glass doors	Powder-coated aluminum sliding-glass doors; painted steel and hinged wood doors
Windows	Brushed-aluminum or vinyl sliding windows in standard sizes	Powder-coated aluminum or good-grade vinyl sliding windows in standard sizes
Roof shape and construction	Gable or flat; rectangular plan; prefabricated wood trusses	Gable; L-, T-, H-, or U-shaped plan; solid-lumber framing
Roofing material	Asphalt shingles; built-up roof	Premium laminated shingles
Skylights	Small-size fixed plastic domes	Small-size operable plastic domes
Subtotal	0	3

Exterior doors

The least expensive doors are sliding glass in a standard aluminum finish, and primed or prefinished wood/plywood hinged doors. As the construction quality, finish level, amount of glass, and design intricacy increase, cost rises. Exterior doors are available individually or as part of a complete prehung-door assembly that includes the surrounding frame, threshold, and weatherstripping. While the cost of one of these assemblies is more than that of a single door, it may be less than the cost of fitting a door to its opening on site.

HARD AND EXPENSIVE



	3	4	5
	Single-level joists over varying-height crawlspace	Multilevel joists over varying-height crawlspace	Multilevel joists over full-height basement
	Straight stud walls supporting varying-height flat/sloped ceilings and flat/gable/hip roof framing	Straight and curved stud walls supporting varying-height ceilings and flat/gable/hip roof framing	Straight and curved walls supporting various ceiling and roof shapes; rain-screen-wall construction
	Stucco or B-grade painted/stained wood siding on all walls; wood trim at windows, doors, corners, and eaves/soffits	Brick or A-grade stained-wood siding on all walls; wood trim at windows, doors, corners, wall base, and eaves/soffits	Stone, clear vertical-grain wood siding, or unique finishes on all walls; wood trim everywhere, including porches and balconies
	Clad-wood sliding-glass doors; fiberglass or stained/clear finish hinged wood doors	Painted or stained wood French doors with standard muntin pattern; matching sidelite panels	Clad-wood French doors with custom muntin pattern; matching sidelite and transom panels
	Painted/stained wood or fiberglass windows in standard sizes	Top-grade painted/stained wood or clad-wood windows in regular muntin pattern; standard sizes	Painted/stained wood, clad wood, or steel windows in custom sizes and shapes
	Gable, hip, shed, and/or flat roof; solid and engineered lumber	Combination of common roof forms; dormers; clerestories	Combination of unique roof forms; lumber and steel framing
	Fire-treated wood shingles	Clay/concrete tile; metal panels	Slate
	Large-size fixed plastic domes	Operable clad-wood roof windows	Custom operable steel/glass units
	2	2	0

Roofing material

Asphalt shingles and asphalt-impregnated felt sheets laminated together with hot tar (a built-up roof) are the least expensive roofing materials. If the roof is a prominent part of a home's appearance, it may be desirable to emphasize the texture and shape of the roof with more refined materials, such as wood or slate shingles or clay or concrete tiles. They are, however, heavier materials that often require additional structural support. The higher installation costs of these materials may be justified because of their increased longevity.

Skylights

The least expensive skylights are aluminum-framed, plastic-domed units in rectangular shapes up to 2 ft. by 8 ft., and in squares up to 4 ft. on a side. Larger sizes—up to 8 ft. sq.—are also standard for many manufacturers, but costs generally increase as side dimensions exceed 4 ft. Vented and operable skylights cost somewhat more. Clad-wood and steel-frame glass skylights are also available in standard sizes, usually in 8-in. increments, at a higher cost.

Windows

Window frames and sashes commonly are made of (from least to most expensive) aluminum, vinyl, fiberglass, steel, wood, or clad wood (wood covered with aluminum or vinyl on the exterior). Sliding windows are the simplest. Casement and awning windows are more expensive, and dual-operation windows, which open like either a casement window or an awning window, tend to be the most expensive. In most climates, insulated glass with multiple glazing is worth the extra expense and may be required by code.

Roof shape and construction

The shape of a house partly influences its roof form. Rectangles or squares can be covered easily with flat or simple gable roofs. They require a minimum amount of structural material, and there are no complicated roof intersections to weatherproof. As a home's floor plan becomes more complex, such as with the addition of wings and courtyards, it may be appropriate to use hip roofs, or combinations of flat, gable, and shed-roof shapes. These complicated roof configurations require more complex assemblies and weatherproofing.

CHART 3



INTERIOR FINISH AND FIXTURES

EASY AND INEXPENSIVE



Interior-wall construction

Most walls are framed with green lumber, which can shrink, causing drywall cracks. Kiln-dried and engineered studs won't warp but cost more. Curved walls require additional studs and fussier drywall work.

Interior doors

Hollow-core doors are the affordable choice. They are lightweight and have smooth faces with no exposed frames. Stile-and-rail doors, which have solid or glass panels, are heavier and more visually interesting than hollow-core doors.

Interior trim

Traditional trim details come in two types: paint grade and stain grade. Because it will be painted, the former can be of a lower quality, but stain-grade trim requires first-rate material and fastidious installation.

Floor coverings

As the durability of the floor surface increases, material costs tend to go up, and installation procedures become more complex.

Lighting

Recessed light fixtures are not as visible as surface-mounted fixtures. They are typically lower in cost because they don't need to be fabricated using high appearance standards; only the trim ring is visible.

Item	1	2	3
Interior-wall construction	Green studs precut for 8-ft.-high ceiling; textured drywall finish	Green studs for 9-ft.-high ceiling; textured drywall finish	Green studs for 9-ft.-high ceiling; smooth drywall finish
Interior doors	Prehung, paint-grade hollow-core doors; standard sizes	Stain-grade hollow-core doors; standard sizes	Paint-grade wood/composite stile-and-rail doors; standard sizes
Interior trim	Simple painted-wood door molding; drywall-cased windows; resilient wall base	Painted-wood door molding, windowsills, wall base; drywall-cased windows	Painted- or stained-wood door and window molding, and wall base
Floor coverings	Economy-grade nylon carpet/pad; vinyl composition tile	Medium-grade nylon carpet/pad; linoleum or vinyl sheet/tile	Good-grade nylon carpet/pad; wood parquet; ceramic tile
Lighting	Economy-grade surface-mounted ceiling/wall fixtures	Medium-grade surface-mounted ceiling/wall fixtures; track lighting	Recessed light fixtures for ambient and accent lighting; some dimming
Countertops	Prefab plastic-laminate top with rounded front edge and integral backsplash, cut to length	Custom plastic-laminate top in standard depths with square or rounded front edge; back and side splashes	Solid-surface top in standard color with eased or rounded front edge; back and side splashes
Cabinets	Economy-grade prefinished manufactured wood or melamine units in modular sizes; 3/4-extension slides	Midprice prefinished manufactured wood or melamine units in modular sizes; 3/4-extension slides	Semi-custom, flush overlay wood and melamine units in modular sizes; full-extension slides; 110° hinges
Appliances	Off-brand base models; white or other standard color	Major manufacturer base models; white or other standard color	Midprice models with extra features; white or standard color
Kitchen-plumbing fixtures	Single-bowl acrylic sink; 1/3-hp disposal	25-in.- to 33-in.-wide single- or double-basin acrylic sink; 1/2-hp disposal	33-in.- to 42-in.-wide enameled cast-iron or stainless-steel double-basin sink; 3/4-hp disposal
Bathroom-plumbing fixtures	Two-piece toilet; acrylic bath with integral apron; single vanity, pedestal, or wall-hung lavatory; white	Two-piece toilet; cast-iron bath with integral apron; two vanity or pedestal lavatories; low-price color	One-piece toilet; cast-iron bath with integral apron; separate shower; two vanity sinks; standard color
Subtotal	0	1	3

Countertops

Stone tends to be the most expensive countertop material because of its high production and installation costs, and the additional structural support that may be needed to support its weight.

Cabinets

The most expensive cabinets have top-grade materials and hardware, unusual shapes and sizes, and hard-to-achieve finishes. Local cabinet shops are often the best choice for this type of custom work.

Appliances

The number of features, fabrication qualities, and finish materials are the main differences between budget appliances and high-end versions. Differences have little impact on function.

HARD AND EXPENSIVE



4	5
Straight and curved walls with green and dry lumber; smooth drywall finish	Straight and curved walls with dry and engineered lumber; plaster finish
Clear/stain-grade wood stile-and-rail and French doors; standard sizes	Custom-designed and -sized wood, metal, and glass doors
More complex; painted- or stained-wood door and window molding, and wall base	Complex; clear-finish wood door, window, and wall molding and trim; wainscot paneling
Solid-wood strip flooring in linear pattern; porcelain or stone tile	Wool carpet/pad; solid-wood strip in custom pattern; stone paving
Extensive recessed, pendant, and wall-sconce fixtures; dimming	Custom recessed, indirect, and surface lights; light-control system
Ceramic/stone tile top with square front edge; solid-surface top in premium color with bullnose edge	Stone slab with full bullnose or custom-profile front edge; stone-slab splashes
Custom painted/stained/clear wood and fiberboard units in any size; full-extension slides; 165° hinges	Custom lacquered/stained/clear wood and plywood units in any size; full-extension slides; 165° hinges; specialty hardware
Models with many features; stainless steel; wood panels	Commercial and European models; 24-in.-deep refrigerator
43-in.- to 48-in.-wide enameled cast-iron or stainless-steel triple-basin sink or separate sinks; 3/4-hp disposal	Stainless-steel multibasin commercial sink; water-filtration system; 1-hp disposal
One-piece low-profile toilet; whirlpool bath; separate glass-enclosed shower; two vanity sinks; premium-cost color	Power-assist low-profile toilet; bidet; whirlpool bath in deck; two-sink vanity; frameless-glass shower enclosure
5	1

TOTALS

Once you've highlighted all the appropriate boxes, you can add up the numbers from all three charts. Chances are your choices haven't all landed in the same project-level categories. Find the average by following the equation demonstrated below.

EXAMPLE

	Project level					Total items 26
	1	2	3	4	5	
Total items x Project level	2	4	10	8	2	
Item values	2x1=2	4x2=8	10x3=30	8x4=32	2x5=10	Total item value 82

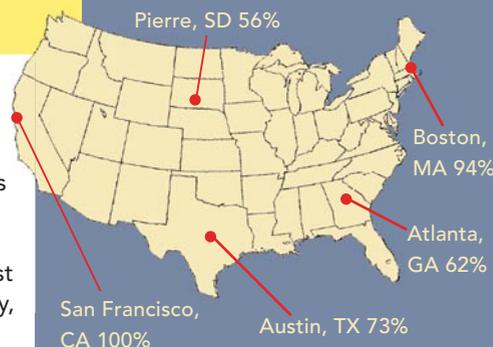
Divide total item value by total items: $82 \div 26 = 3.15$

Look in the project-cost chart below to find the unadjusted square-footage cost. In our example, the item-value average is 3.15, putting it at the low end of \$300 to \$400 per sq. ft. We'll figure \$315 per sq. ft. (remember, these are San Francisco prices). Next, we make some adjustments from the chart below. In our example, we're subtracting \$60 from our projection because the remodel is over 1000 sq. ft. So our adjusted ballpark number is \$255 sq. ft., bringing our reality-check cost projection to 1200 sq. ft. x \$255 = **\$306,000**.

Project cost per square foot

	1	2	3	4	5
Sq.-ft. cost	Under \$200/sf	\$200-\$300/sf	\$300-\$400/sf	\$400-\$500/sf	\$500 and up/sf
Adjustments to cost					
Kitchens & baths only	Add \$100/sf	Add \$100/sf	Add \$150/sf	Add \$150/sf	Add \$200/sf
Projects less than 250 sq. ft.	Add \$20/sf	Add \$40/sf	Add \$60/sf	Add \$80/sf	Add \$100/sf
1000 sq. ft. and up	Subtract \$20/sf	Subtract \$40/sf	Subtract \$60/sf	Subtract \$80/sf	Subtract \$100/sf

REGIONAL COST ADJUSTMENTS A dollar's worth of building in San Francisco would cost 56¢ in Pierre, S.D. That's according to HomeTech, an information service that keeps tabs on construction labor and material costs. You can customize your educated guess with the help of their Web site, www.myremodelingproject.com.



Simply key in the details of a project with San Francisco's ZIP code (94102), and print out the results. Clear the browser (very important), and key in the exact same project for your ZIP code. Divide the number for your area by the San Francisco estimate. The result is your regional adjustment percentage.

Kitchen-plumbing fixtures

Price is affected mainly by the fabrication material, type, and thickness; sink size and bowl configuration; and color. White is usually the least expensive.

Bathroom-plumbing fixtures

As the number of fixtures in a full bath increases beyond the three basics (sink, toilet, and tub), cost rises for additional supply, drain, and vent lines.