LIFE CYCLES AND COSTS **►** TABLE OF CONTENTS Page ► HOME IMPROVEMENT PROJECTS 4 ► ROOFING/FLASHINGS/CHIMNEYS 4 ► EXTERIOR 5 ► STRUCTURE 7 ► ELECTRICAL ► HEATING ► COOLING/HEAT PUMPS 9 ► INSULATION 9 ► PLUMBING 10 ► INTERIOR 11

The following costs are ball park estimates for a typical three bedroom home. The costs have been categorized in a similar fashion to the systems covered in the blue tab sections. Where appropriate, typical life expectancies are included in parenthesis. The life expectancy of some components will vary with the severity of weather in the region. The design, quality of installation and level of maintenance can also drastically affect life expectancy.

There are many factors that affect costs:

- Access How difficult is it to get to? Crawlspaces are harder to work in than basements. Three-story roofs are harder to work on than bungalow roofs. Steep roofs are more difficult than low slope roofs.
- **Height** If you need to build scaffolding to get to the chimney, chimney repairs will cost more.
- Complexity of job Roofs with lots of dormers and skylights are more expensive.
- Weight Heavy roofing materials are hard to carry up the ladder.
- **Disposal costs** Costs to get rid of the old materials vary and can be significant.
- Amount and difficulty of preparation work Painting is not as expensive as stripping, scraping and sanding to get ready to paint.
- Cost of materials Clear cedar siding costs more than paint grade wood, which costs more than vinyl siding.
- Availability of materials Cedar roofing is significantly less expensive on the west coast, than in the east.
- **Installation technique** It costs more to glue and screw subflooring in place than to nail it. It costs more to put deck posts on a footing than on the ground.
- **Amount of labour** It takes longer to lay a ceramic tile floor than a sheet vinyl floor.
- **Skill level of labor** It costs more to tape drywall than to hang it. It costs more to paint a faux finish than a flat finish. Plumbers cost more than handymen.
- Scarcity of labor In many areas it is hard to find people who do plaster rather than drywall, or work on steam boilers rather than forced air heat.
- **Quality of system** Furnaces can cost \$2,000 to \$8,000, depending on their quality and features. It's a lot like buying a car.
- Economic conditions Are trades people generally busy and not looking for work, or very slow and anxious to do any job? Is the market competitive, or are there only one or two companies that can do what you are looking for?
- Time of year In many areas, there are construction seasons that depend on the weather, and renovations and repairs will be more expensive in the high season.
- **Reputation of company** Are you looking for an industry leader or someone just getting started? The folks with good reputations and a long list of satisfied clients referring work to them will be harder to find, and more expensive to engage.

The figures that follow include labor and materials. Many home repairs have a minimum fee based on a visit by a tradesperson.

► HOME IMPROVEMENT PROJECTS

	According to Remodeling magazine, here are some national average costs for common remodeling projects in the U.S. in 2007:			al average costs	
Bathroom		Bathroom remodel Bathroom remodel Premium quality (Larger bathroom)	\$	16,000 50,000	Roughly \$450/sq. ft. Roughly \$500/sq. ft.
Kitchen		Major kitchen remodel Major kitchen remodel Premium quality		55,000 110,000	Roughly \$275/sq. ft. Roughly \$550/sq. ft.
Basement and Family Room		Basement remodel (includes small bath and wet bar)		60,000	Roughly \$100/sq. ft.
Garage		Family room addition Garage - New detached (2 car, including electrical)	<u>\$</u> \$	80,000 54,000	Roughly \$200/sq.ft. Roughly \$80/sq. ft.
	8.	Garage - New detached Premium quality	\$	82,000	Roughly \$121/sq. ft.
Roofing	9.	Re-roofing with asphalt shingles (includes stripping old roofing, new underlayment and flashings)	\$	18,000	Roughly \$6/sq. ft.
	10.	Re-roofing with sheet steel roofing (includes stripping old roofing, new underlayment and flashings)	\$	33,000	Roughly \$11/sq. ft.
Siding	11.	Re-siding with vinyl	\$	10,000	Roughly \$8/sq. ft.
	12.	Re-siding with fiber cement	\$	13,000	Roughly \$10/sq. ft.
Windows	13.	Replace 10 windows with wood	\$	11,000	Roughly \$1,100/window or \$75/sq. ft.
	14.	Replace 10 windows with premium quality wood windows	\$	17,000	Roughly \$1,700/window or \$110/sq. ft
Deck	15.	Install wood deck (includes railing, bench and steps)	\$	10,000	Roughly \$30/sq. ft.
	16.	Install composite deck (includes railing, bench and steps)	\$	15,000	Roughly \$50/sq. ft.

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► ROOFING / FLASHINGS /CHIMNEYS

Sloped Roof	1.	Strip asphalt shingles	\$0.75-\$1.50 per sq. ft.	
	2.	Re-roof with conventional asphalt shingles	\$2.00-\$4.00 per sq. ft.	(twelve to twenty yrs)
	3.	Re-roof with premium quality asphalt shingles	\$4.00-\$8.00 per sq. ft.	(twenty to thirty yrs)
	4.	Strip and re-roof with cedar shingles or shakes	\$9.00-\$18.00 per sq. ft.	(twenty to thirty-five yrs)
	5.	Install concrete tile roofing (assuming no structural reinforcement)	\$8.00-\$16.00 per sq. ft.	(fifty yrs and up)
	6.	Install new slate roof	\$30-\$60 per sq. ft.	(forty to two-hundred yrs)
	7.	Repair loose slates or tiles	\$25-50 per slate/tile (minimum \$1000)	
	8.	Install roll roofing	\$1.50-\$3.00 per sq. ft.	(five to ten yrs)

	LIFE CYCLES AND COSTS
Flat Roof	9. Install built-up tar and gravel \$10.00–\$20.00 per sq. ft. (fifteen to twenty yrs) roof (minimum \$1000)
	10. Install modified bitumen roof \$8.00–\$16.00 per sq. ft. (fifteen to twenty-five yrs) membrane (minimum \$1000)
	11. Improve flat roof drainage \$2.00–\$4.00 per sq. ft. prior to installation of new membrane
	12. Paint modified bitumen \$0.50–\$1.00 per sq. ft. (minimum \$200)
	13. Install sheet metal on small \$10.00–\$20.00 per sq. ft. roof surfaces (minimum \$1000)
Flashings	14. Reflash standard chimney: – asphalt shingle roof \$500–\$1000 – built-up or modified
	bitumen membrane \$700-\$1500
	15. Install metal cricket at wide chimney \$400–\$800
	16. Reflash standard skylight: - asphalt shingle roof \$500-\$1000 - built-up or modified
	bitumen membrane \$700-\$1500
	18. Repair valley flashings \$25–\$50 per lin. ft. on existing roof (minimum \$600)
	19. Replace parapet wall flashing \$20–\$50 per lin. ft. (minimum \$600)
Chimney	20. Rebuild typical chimney above roofline: (scaffolding not included) - single flue \$150-\$300 per lin. ft.
	(minimum \$1000) - double flue \$200-\$400 per lin. ft. (minimum \$1000)
	21. Repoint typical chimney above roof line: (scaffolding not included) – single flue \$20–\$40 per row (minimum \$400)
	- double flue \$25–\$50 per row (minimum \$400)
	22. Install concrete cap on typical chimney: - single flue \$250–\$500 - double flue \$400–\$800
	23. Install rain cap on \$200-\$300 each typical chimney

► EXTERIOR

Gutters and Downspoutts	1.	Install galvanized or aluminum \$5.00-\$10.00 per lin. ft. (twenty to thirty yrs) gutters and downspouts		
	2.	Install copper gutters and downspouts	\$15–\$30 per lin. ft	(fifty to one hundred yrs)
	3.	Install aluminum	\$8.00-\$16.00 per lin. ft.	

	soffits and fascia	
4.	Install:	
	 aluminum siding 	\$4.00-\$8.00 per sq. ft.
	vinyl siding	\$6.00-\$12.00 per sq. ft.
	 fiber cement siding 	\$7.00-\$14.00 per sq. ft
5.	Install and finish wood siding	using:
	- cedar	\$8.00-\$16.00 per sq. ft.
	paint grado	\$6.00 \$12.00 por sq. ft

paint grade \$6.00-\$12.00 per sq. ft 6. Install stucco \$6.00-\$12.00 per sq. ft



	LIF	E CYCLES AND COSTS		
	7.	Repointing: - Soft mortar	\$3.00–\$6.00 per sq. ft.	
		- Hard mortar	(minimum \$500) \$5.00-\$10.00 per sq. ft. (minimum \$500)	
	8.	Replace deteriorated bricks	\$25-\$50 per sq. ft	
	9.	Rebuild parapet wall	\$25-\$50 per sq. ft	
	10.	Painting (exclusive of repairs): - trim only (soffits, fascia, door and window frames) - trim and wall surfaces	\$2000 and up	(four to six yrs)
		(wood, brick, stucco)	\$5000 and up	(four to six yrs)
Basement Dampproof	11.	Dampproof foundation walls and install perimeter drainage tiles	\$150-\$300 per lin. ft. (minimum \$3000)	
Driveway	12.	Resurface existing asphalt driveway	\$2.00-\$4.00 per sq. ft.	(ten to twenty yrs)
	13.	Seal asphalt driveway	\$0.30 per sq. ft. and up	(one to three yrs)
	14.	Install interlocking brick driveway	\$8.00-\$16.00 per sq. ft.	(fifteen yrs and up)
	15.	Install concrete driveway (no pattern)	\$8.00-\$16.00 per sq. ft.	(thirty to forty yrs)
	16.	Install drain at bottom of sloped driveway	\$2000 and up	
Patio	17.	Install concrete slab patio	\$5.00-\$10.00 per sq. ft.	(thirty to forty yrs)
	18.	Install concrete patio stones	\$2.50-\$5.00 per sq. ft.	(thirty to forty yrs)
	19.	Rebuild exterior basement stairwell	\$5000 and up	
	20.	Install drain at existing basement stairwell	\$750–\$1500	
Garage	21.	Build detached garage	\$70-140 per sq. ft.	
	22.	Break wood/soil contact at detached garage	\$25–\$50 per lin. ft. (minimum \$1000)	
	23.	Demolish and remove detached garage	\$1500 and up	
	24.	Install garage door: - single metal one-piece - single wood sectional - double wood sectional	\$500-\$1000 \$700-\$1400 \$1200-\$2500	
	25.	Install garage door opener	\$300–\$600	(eight to twelve yrs)
	26.	Build retaining wall:	Φ00 Φ40	
		– wood	\$20-\$40 per sq. ft. (minimum \$500)	
		- concrete	\$30-\$60 per sq. ft. (minimum \$500)	
	27.	Replace porch steps: - wood	\$750 and up	
		- concrete	\$1500 and up	
		Replace porch flooring	\$4.00–\$8.00 per sq. ft.	
		Replace porch skirting	\$10-\$20 per lin. ft.	
	30.	Replace step railing	\$400–\$800	
	31.	Install fencing: - wood - chain link	\$20–\$50 per lin. ft. \$10–\$20 per lin. ft.	
	32	Install lawn sprinkler system	\$2000 and up	



32. Install lawn sprinkler system \$2000 and up

► STRUCTURE

1.	Underpin one corner of house	\$5000 and up	
2.	Underpin or add foundations	\$300 and up per lin. ft. (minimum \$3000)	
3.	Lower basement floor by underpinning and/or bench footings	\$150-\$300 and up per lin. ft. (minimum \$5000)	
4.	Replace deteriorating sill beam with concrete	\$60 and up per lin. ft. (minimum \$2000)	
5.	Replace main beam in basement (unfinished)	\$4000 and up	
6.	Re-support joist by sistering another alongside	\$250 and up	
7.	Install basement support post with proper foundation.	\$800-\$1600	
8.	Chemical treatment for termites	\$2000 and up	(ten to twenty yrs)
9.	Termite inspection performed by a specialist	\$200-\$400	
10.	Remove or open bearing wall (exclusive of decorating)	\$2000 and up	
11.	Remove partition wall (exclusive of decorating)	\$2000 and up	
12.	Install door opening in interior wall	\$750-\$1500 (exclusive of decorating)	
13.	Rebuild arch above window or door opening	\$1000 and up	
14.	Install lintel above opening in masonry wall	\$1000 and up	
15.	Install exterior basement stairwell	\$10000 and up	
16.	Build an addition: - foundation to roof - additional story	\$200–\$400 per sq. ft. \$150–\$300 per sq. ft.	
17.	Install collar ties	\$30–\$60 each (minimum \$400)	
18.	Install lateral bracing on collar ties	\$100-\$200	
19.	Replace roof sheathing	\$4.00-\$8.00 per sq. ft.	

► ELECTRICAL

1.	Upgrade electrical service to 100-amps (including new panel and breakers)	\$1500–\$3000
2.	Upgrade electrical service to 100-amps (if suitably sized panel already exists)	\$800-\$1600
3.	Upgrade electrical service to 200-amps	\$1700–\$3500

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4.	Replace main ground: - home on public water system	\$200–\$400	
	home on private well (Install ground rods)	\$300-\$600	
5.	Install new breaker panel	\$700-\$1400 (add \$200 for 200A panel)	
6.	Install auxiliary breaker panel	\$350-\$700	
7.	Replace circuit breaker (20 amp or less)	\$100-\$200	
8.	Add 120-volt circuit (microwave, freezer, etc.)	\$250-\$300	
9.	Install exterior outlet with waterproof cover	\$150-\$300	
10.	Add 240-volt circuit (dryer, stove etc.)	\$300–\$600	
11.	Add conventional receptacle	\$200–\$400	
12.	Add kitchen split receptacle	\$200–\$400	
13.	Replace conventional receptacle with ground fault circuit interrupter receptacle	\$70-\$140	(\$200–\$400 for kitchen)
14.	Replace conventional receptacle with aluminum compatible type (CO/ALR)	\$60-\$120 each	(assuming several are required)
15.	Upgrade entire house with aluminum compatible connectors, receptacles etc.	\$1000-\$2000	
16.	Rewire electrical outlet with reversed polarity	\$5-\$10 each (\$100 minimum)	
17.	Rewire entire house from aluminum to copper wiring	\$750-\$1500 per room	
18.	Replace switches (dimmer, standard, lighted etc.)	\$10–\$20 each (\$100 minimum)	
19.	Install standard light fixture	\$100-\$200	
20.	Install exterior light	\$250-\$500	
21.	Install fluorescent light fixture	\$150–\$300	
22.	Rewire entire house during gut or renovations	\$750-\$1500 per room	
23.	Replace knob & tube wiring with modern wiring	\$1000-\$2000 per room	

► HEATING

1.	Install mid efficiency forced-air furnace	\$2000-\$5000	(fifteen to twenty-five yrs)
2.	Install high efficiency forced-air furnace	\$3500-\$7000	(fifteen to twenty-five yrs)
3.	Annual service	\$200 minimum	
4.	Replace blower and/or motor	\$350–\$700	(ten to twenty yrs)
5.	Replace induced draft fan	\$600–\$1200	
6.	Install humidifier	\$300–\$600	(five to ten yrs)
7.	Install electronic air filter	\$800–\$1600	(ten to twenty yrs)
8.	Install pleated air filter	\$300-\$1600	
9.	Install mid efficiency boiler	\$3500-\$7000	(fifteen to twenty-five vrs)



LIFE CYCLES AND COSTS		
10. Install high efficiency boiler	\$3500–\$12000	(fifteen to twenty-five yrs)
11. Replace refractory pot	\$300-\$500	
12. Install circulating pump	\$400–\$600	(ten to twenty-five yrs)
13. Install expansion tank	\$300-\$600	
14. Install backflow preventer	\$250-\$500	
15. Install chimney liner (for gas)	\$500-\$1000	
16. Install programmable thermostat	\$200–\$400	
17. Replace indoor oil tank	\$1200-\$2400	
18. Remove oil tank: – interior – underground	\$600 and up \$10000 and up	
19. Replace radiator valve	\$300-\$600	
20. Replace radiator	\$750-\$1500	
21. Add electric baseboard heater	\$250–\$500	
22. Convert from hot water heating to forced air: – bungalow – two story	\$10000–\$20000 \$15000–\$30000	
23. Clean ductwork	\$300-\$600	
24. Install heat recovery ventilator	or\$2500-\$5000	

► COOLING/HEAT PUMPS

1.	Add central air conditioning on existing forced-air system	\$3000 and up	(ten to fifteen yrs)
2.	Add heat pump on existing forced-air system	\$4000–\$8000 (dependent on source of heat)	(ten to fifteen yrs)
3.	Install independent air conditioning system	\$10000-\$20000	(ten to fifteen yrs)
4.	Install ductless air conditioning system	\$3000-\$7000	(ten to fifteen yrs)
5.	Annual service	\$200 minimum	

► INSULATION

1.	Insulate open attic area to modern standards	\$.80-\$1.60 per sq. ft.
2.	Blow insulation into flat roof, cathedral ceiling or wall cavity	· · · · · · · · · · · · · · · · · · ·
3.	Improve attic ventilation (supplied while re-roofing)	\$30-\$60 per vent
4.	Install spray foam insulation (typical 2 story, 3 bedroom)	\$5000-\$10000
5.	Insulate basement from interior	\$1.00 and up per sq. ft.

► PLUMBING

1.	Replace galvanized		
	piping with copper:	\$750-\$1500	NOTE: Figures do not include repairs to finishes
	per kitchenper bathrooom	\$1500-\$3000	after disruption
2.	Replace public water supply pipe to house	\$150–\$300 per lin. ft. (min \$2000)	
3.	Replace main shut off valve	\$150-\$300	
4.	Install conventional water heater	\$500-\$1000	(eight to twelve yrs)
5.	Install induced draft water heater	\$800–\$1600	(eight to twelve yrs)
	Install tankless water heater	\$2500-\$3500	
6.	Typical monthly rental of conventional water heater	\$10–\$20	
7.	Replace toilet	\$500 and up	(thirty to forty yrs)
8.	Replace toilet flush mechanism	\$100–\$200	
9.	Unclog or remove obstruction from toilet	\$100–\$200	
	Replace seal on toilet	\$150–\$300	
11.	Install bidet	\$700 and up	(thirty to forty yrs)
12.	Replace basin:	4500	<i>(</i> , , , , , , , , , , , , , , , , , , ,
	vanitypedestal	\$500 and up \$700 and up	(twelve to twenty yrs) (twelve to twenty yrs)
13	Replace faucet set	\$250 and up	(ten to fifteen yrs)
	Replace bathtub,	\$2000 and up	(twenty to thirty yrs)
	including ceramic tile	7-333 SIN SIP	(
15.	Install refinished claw foot bathtub	\$2500 and up	(fifteen to twenty yrs)
16.	Replace bathtub/shower faucet set	\$400 and up	(ten to fifteen yrs)
17.	Install whirlpool bath	\$3500 and up	(fifteen to twenty-five yrs)
18.	Retile bathtub enclosure	\$1000–\$2000	
19.	Replace leaking shower stall pan	\$1000–\$2000	
20.	Rebuild tile shower stall	\$2500-\$5000	
21.	Install plastic bathtub enclosure	\$500–\$1000	(ten to fifteen yrs)
22.	Install plastic shower stall	\$1000–\$2000	(ten to fifteen yrs)
23.	Install bathroom exhaust fan	\$300–\$600	(five to ten yrs)
24.	Install modest basement bathroom	\$5000 and up	
25.	Replace laundry tubs	\$400–\$800	(fifteen to twenty-five yrs)
	Install laundry facilities	\$1000 and up	
27.	Install kitchen sink:	4500	(00)
	singledouble	\$500 and up \$800 and up	(fifteen to twenty-five yrs) (fifteen to twenty-five yrs)
28	Install solid waste pump	\$1500-\$3000	(five to ten yrs)
	Connect waste plumbing system to municipal sewers	\$5000 and up	(iii to toli yio)

30. Snake out obstruction in main sewer line below yard	\$250-\$500	
31. Repair collapsed or damaged section of sewer line below yard	\$2000 and up	
32. Install submersible pump in well	\$1000 and up	(ten to fifteen yrs)
33. Install suction or jet pump for well	\$700 and up	(ten to fifteen yrs)
34. Replace water tank for pump	\$300–\$700	
35. Install water softener	\$1000 and up	(five to fifteen yrs)
36. Install outdoor faucet	\$300-\$600	
37. Replace sump pump	\$350-\$700	(two to seven yrs)
38. Install sauna	\$3000 and up	

► INTERIOR

1.	Add drywall over plaster	\$4.00-\$8.00 per sq. ft.
2.	Remove old plaster and	\$5.00-\$10.00 per sq. ft. (plus disposal costs)
3.	install drywall Add wire lath and new plaster over existing plaster	\$5.00-\$10.00 per sq. ft.
4.	Spray stipple on existing ceiling	\$2.00-\$4.00 per sq. ft
5.	Install suspended tile ceiling	\$5.00-\$10.00 per sq. ft.
6.	Install drywall on unfinished basement ceiling	\$5.00-\$10.00 per sq. ft.
7.	Sand and refinish hardwood floors	\$2.00-\$4.00 per sq. ft.
8.	Install hardwood floors: – 3/8 inch thick – 3/4 inch thick	\$8 per sq. ft. \$12 per sq. ft.
9.	Install parquet flooring	\$5–\$10 per sq. ft.
10.	Install ceramic floor tiles	\$15 and up per sq. ft.
11.	Install vinyl floor tiles	\$3 and up per sq. ft.
12.	Install sheet vinyl	\$6-\$12 per sq. ft.
13.	Install synthetic wall-to-wall carpet	\$25–\$50 per sq. yard
14.	Install wool wall-to-wall carpet	\$60 and up per sq. yard
15.	Install laminate flooring	\$3.00-\$6.00 per sq. yard
16.	Clean carpets	\$30 per room (minimum \$120)
17.	Replacement windows: - Sliding windows - Casement windows - Awning windows - Double hung - Fixed - Bay	\$40-\$100 per sq. ft. \$60-\$120 per sq. ft. \$40-\$100 per sq. ft. \$60-\$120 per sq. ft. \$35-\$80 per sq. ft. \$40-\$100 per sq. ft.
18.	Storm windows	\$200-\$400 each
19.	Convert coal-burning fireplace to wood-burning unit	\$4000 and up (if possible)

20. Install masonry fireplace:– with single flue chimney– from rough-in	\$7000 and up \$3000 and up	
21. Install zero clearance fireplace	\$3500 and up	
22. Install gas fireplace (excluding interior finishes)	\$4000 and up	
23. Install glass doors on fireplace	\$300 and up	
24. Clean fireplace chimney flue	\$75-\$150 each	
25. Install fireplace damper	\$700 and up	
26. Install interior hollow-core door	\$300-\$600	
27. Install interior custom wood door	\$450 and up	
28. Install exterior door	\$750-\$3000	
29. Install closer on garage man door	\$200-\$400	
30. Install storm door	\$500-\$1000	(ten to twenty yrs)
31. Install sliding glass doors: – brick wall – wood frame wall	\$3500-\$7000 \$2500-\$5000	
32. Replace sliding glass door	\$2000-\$5000	(ten to twenty yrs)
33. Install skylight	\$3000 and up	
34. Install roof window or ventilating skylight	\$1500 and up	
35. Install kitchen cabinets	\$300 and up per lin. ft.	
36. Install kitchen couner	\$25 and up per lin. ft.	
37. Install ceiling fan	\$500 and up	
38. Install conventional alarm system	\$1000 and up	
39. Install central vacuum system	\$1000–\$2000	
40 Install central vacuum canister only	\$500-\$1000	
41. Paint interior (walls, ceilings, doors, trim) of entire house	\$3000 and up	(five to ten yrs)
42. Hang wallpaper	\$3.00 and up per sq. ft	
43. Urethane injection of poured concrete foundation cracks	\$400-\$800 each	
44. Excavate and repair foundation cracks	\$1000-\$2000 each	
45. Injection repair of tie rod hole	\$250-\$500 each	
46. Install interior dampproofing system on inside of foundation walls	\$100-\$150 per lin. ft.	
47. Dampproof foundation walls and install perimeter drainage tiles	\$150-\$300 per lin. ft. (minimum \$3000)	