

Floor Coverings Comparison

Life Cycle Cost

The Tile Council of North America commissioned an independent construction cost consulting firm, Scharf-Godfrey (a Division of Phoenix Engineering, Inc.), to conduct a Life Cycle Cost study comparing various types of ceramic tile, including porcelain, mosaic, and quarry tile, to 12 other floor finishes such as hardwood, laminate, concrete, stone, carpet, terrazzo, vinyl, and poured epoxy (for specifics see chart).

Definition of Life Cycle Cost

Life Cycle Cost Analysis (LCCA) is an economic method of project evaluation in which all costs arising from owning, operating, maintaining, and disposing of a project are considered important to the decision.

The definition of Life Cycle Cost used in the 2005 study was the initial cost to install, which includes labor, materials, normal contractor's overhead and profit, plus periodic maintenance costs to preserve and maintain the appearance of the product, and the final costs to remove the floor covering at the end of its useful life. Future expected costs were discounted to today's dollars using the Present Value (PV) of a future payment calculated as a function of interest rate and an assumed inflation rate. It was assumed that there is no salvage value to any of the products at the end of their useful life, but there are disposal fees associated with removal of the floor covering.

How the Study Was Conducted

Scharf-Godfrey, construction cost consultants, chose the Life Cycle Cost method for collecting and comparing the data used in the study. The costs represent an appraisal of actual initial installation costs, custodial maintenance expenses, and removal costs for each material over the product life cycle.

Each of the firms contacted answered questions in those areas they felt qualified to discuss, particularly in relation to costs and usable lives of various floor finish materials. For some materials, the price was developed from Scharf-Godfrey's extensive database used to estimate construction projects, or quotes were obtained from various construction estimating sources.

In all cases, the developed costs reflect high standards for installation and good maintenance practices.

Scharf-Godfrey

Scharf-Godfrey is an independent construction cost consulting organization with no vested interest in ceramic tile or any other floor finish. The study was conducted and this report was prepared by Scharf-Godfrey staff members without special regard to one type of finish over another.



Malini Gupta Glueck, P.E.
President

Conclusion of Study

Ceramic Tile, the Most Economical of all Floor Finishes

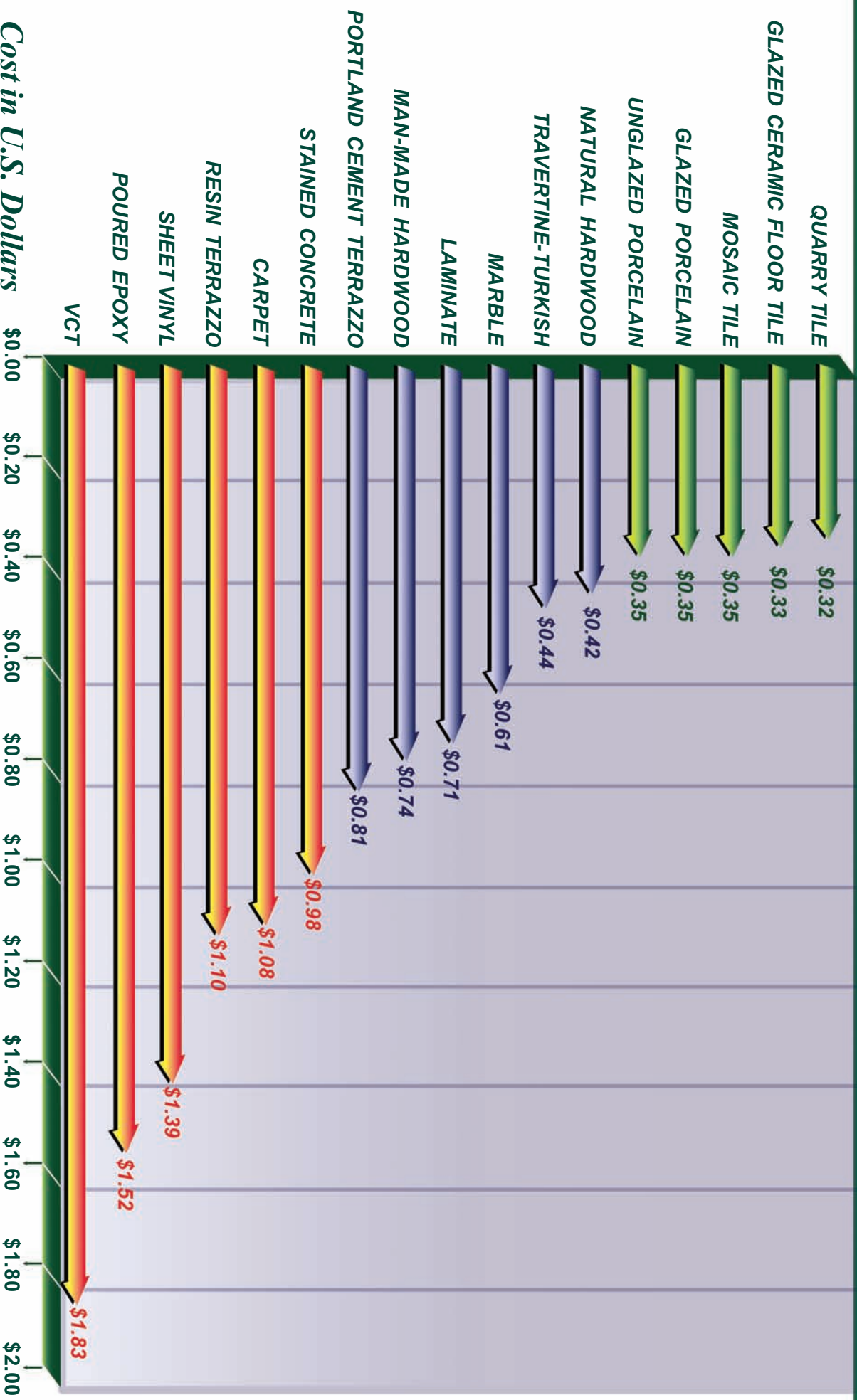
Ceramic tile costs less per year than all other floor finishes over the life of a building. In fact, all tile is less than \$0.40 per square foot per year. Carpet and vinyl are significantly more expensive because of their shorter expected lives.

2005 LIFE CYCLE COST FOR FLOOR FINISHES

FLOOR FINISH	INSTALLED COST*	LIFE CYCLE COST*	EXPECTED LIFE (YRS)	COST PER YEAR*
Quarry Tile	\$ 6.83	\$16.13	50	\$0.32
Glazed Ceramic Floor Tile	\$ 7.00	\$16.30	50	\$0.33
Glazed Porcelain	\$ 8.34	\$17.64	50	\$0.35
Mosaic Tile	\$ 8.20	\$17.50	50	\$0.35
Unglazed Porcelain	\$ 8.30	\$17.60	50	\$0.35
Natural Hardwood	\$ 9.31	\$20.80	50	\$0.42
Travertine-Turkish	\$12.50	\$21.80	50	\$0.44
Marble	\$21.00	\$30.30	50	\$0.61
Laminate	\$ 8.84	\$17.77	25	\$0.71
Man-Made Hardwood	\$ 9.58	\$18.51	25	\$0.74
Portland Cement Terrazzo	\$14.88	\$24.27	30	\$0.81
Stained Concrete	\$12.40	\$24.60	25	\$0.98
Carpet	\$ 3.22	\$ 6.50	6	\$1.08
Resin Terrazzo	\$ 8.50	\$16.53	15	\$1.10
Sheet Vinyl	\$ 6.90	\$13.90	10	\$1.39
Poured Epoxy	\$ 8.18	\$15.18	10	\$1.52
VCT	\$ 3.91	\$18.35	10	\$1.83

*Per square foot

Floor Coverings Comparison: Life Cycle Cost Per Square Foot Per Year



Cost in U.S. Dollars

Floor Coverings Comparison

Maintenance Cost Chart

Cost Per Sq. Foot	Required Maintenance Expressed in Years** (5 Year Increments)						
	Description	5Yrs.	10Yrs.	15Yrs.	20Yrs.	25Yrs.	30Yrs.
	Carpet	\$ 2.34	\$ 0.48*	\$0.00	\$0.00	\$0.00	\$0.00
	Glazed Ceramic Floor Tile	\$ 4.78	\$ 4.78	\$4.78	\$4.78	\$4.78	\$4.78
	Glazed Porcelain	\$ 4.78	\$ 4.78	\$4.78	\$4.78	\$4.78	\$4.78
	Laminate	\$ 4.68	\$ 4.68	\$4.68	\$4.68	\$4.68	\$0.00
	Man-Made Hardwood	\$ 4.68	\$ 4.68	\$4.68	\$4.68	\$4.68	\$0.00
	Marble	\$ 4.78	\$ 4.78	\$4.78	\$4.78	\$4.78	\$4.78
	Mosaic Tile	\$ 4.78	\$ 4.78	\$4.78	\$4.78	\$4.78	\$4.78
	Natural Hardwood	\$ 4.68	\$ 7.93	\$5.68	\$7.93	\$4.68	\$7.93
	Portland Cement Terrazzo	\$ 4.78	\$ 4.78	\$4.78	\$4.78	\$4.78	\$4.78
	Poured Epoxy	\$ 4.78	\$ 4.78	\$0.00	\$0.00	\$0.00	\$0.00
	Quarry Tile	\$ 4.78	\$ 4.78	\$4.78	\$4.78	\$4.78	\$4.78
	Resin Terrazzo	\$ 4.78	\$ 4.78	\$4.78	\$0.00	\$0.00	\$0.00
	Sheet Vinyl	\$ 4.78	\$ 4.78	\$0.00	\$0.00	\$0.00	\$0.00
	Stained Concrete	\$ 6.43	\$ 6.43	\$6.43	\$6.43	\$6.43	\$0.00
	Travertine-Turkish	\$ 4.78	\$ 4.78	\$4.78	\$4.78	\$4.78	\$4.78
	Unglazed Porcelain	\$ 4.78	\$ 4.78	\$4.78	\$4.78	\$4.78	\$4.78
	VCT	\$10.38	\$10.38	\$0.00	\$0.00	\$0.00	\$0.00

*Reflects 6-year life

** Floor coverings listed in alphabetical order

Cost Per Sq. Foot	Installation Cost Chart**				
	Description	Material Cost	Other Costs	Installation Labor	Total Cost
	Carpet	\$ 2.48	\$0.00	\$0.74	\$ 3.22
	Glazed Ceramic Floor Tile	\$ 3.50	\$0.00	\$3.50	\$ 7.00
	Glazed Porcelain	\$ 4.65	\$0.00	\$3.69	\$ 8.34
	Laminate	\$ 3.59	\$0.50	\$4.75	\$ 8.84
	Man-Made Hardwood	\$ 4.33	\$0.50	\$4.75	\$ 9.58
	Marble	\$12.00	\$0.00	\$9.00	\$21.00
	Mosaic Tile	\$ 4.35	\$0.00	\$3.85	\$ 8.20
	Natural Hardwood	\$ 3.06	\$0.25	\$6.00	\$ 9.31
	Portland Cement Terrazzo	\$ 6.00	\$2.88	\$6.00	\$14.88
	Poured Epoxy	\$ 3.00	\$0.93	\$4.25	\$ 8.18
	Quarry Tile	\$ 3.51	\$0.00	\$3.32	\$ 6.83
	Resin Terrazzo	\$ 3.50	\$0.00	\$5.00	\$ 8.50
	Sheet Vinyl	\$ 4.65	\$0.00	\$2.25	\$ 6.90
	Stained Concrete	\$ 2.25	\$0.40	\$9.75	\$12.40
	Travertine-Turkish	\$ 9.00	\$0.00	\$3.50	\$12.50
	Unglazed Porcelain	\$ 4.95	\$0.00	\$3.35	\$ 8.30
	VCT	\$ 0.99	\$0.42	\$2.50	\$ 3.91

** Floor coverings listed in alphabetical order