

Carpet

THE RIGHT CHOICE FOR THE
COMMERCIAL ENVIRONMENT



Use-Life Cost Analysis



A Step-by-Step Guide to Use-Life Cost Analysis

What offers an array of advantages to the corporate or commercial environment, including warmth, noise absorption, comfort, and safety, yet stands up to the tough abuse of many feet? Carpet! Architects, interior designers, and facility managers have discovered carpet's benefits, but many want to make sure they're getting the best value when they make their selection of floor covering.

A use-life cost analysis is the key. The benefit of this analysis is that it can be used before making a large purchase to compare materials and to be sure you're getting the best product for the money.

Step 1: Understand the Basics of Use-Life Costing

Use-life costing helps determine the true expenditure over time. The basic premise of the formula is that a product's ultimate cost encompasses more than the initial expense. It is actually the initial cost, plus the cost of maintenance, divided by the number of years used. Maintenance, repairs, and inflation are factors that affect carpet cost over its lifetime.

costs, divided by years of use—gives you a guideline for cost per year for the life of the carpet.

Step 3: Analyze Cost Variables

Budgets typically determine how much per square foot or yard can be spent. Of course, finding the best carpet for a particular area at the best price is the goal. You may save with a less expensive carpet, but you won't receive expected performance and appearance retention you could get with a better quality product. The value of good carpet comes through in its performance. The longer carpet lasts, the less it costs over time, making it imperative to select a product with adequate performance characteristics.

Carpet performance depends on many factors: construction, fiber type, color choice, design, and application. To ensure proper choices, work closely with carpet representatives to choose a product designed to meet performance expectations. For additional help on specification, contact the Carpet and Rug Institute (CRI).

USE-LIFE COSTING FORMULA

$$\frac{\text{Initial cost} + \text{Removal costs (replacement in a renovation)} + \text{Maintenance cost}}{\text{Years of use}} = \text{USE-LIFE COST}$$

Step 2: Assign Values to the Formula

- The price of carpet for a new building includes the initial carpet cost and the installation costs.
- In a renovation, removing existing carpet is part of the formula.
- Maintenance costs include an estimate for time and out-of-pocket expenses incurred while performing routine facility management.
- "Years of use" is an estimation of the number of years the carpet will be on the floor.

Computing the figures this way—sum of initial cost, removal cost in a renovation, and maintenance

Step 4: Create a Routine Maintenance Program and Compare Costs Over Time

Experts agree that regularly scheduled maintenance is essential for maintaining appearance retention and other performance qualities.

Comparing the cost of maintenance for different kinds of floor coverings gives a true perspective of the performance of each type of floor covering and the cost. Carpet is less expensive to keep in good condition than hard-surface flooring when both are maintained properly. The low cost to maintain carpet becomes a clear benefit.



Various studies have compared the time and expense required for cleaning different types of floor coverings. Carpet, vinyl composition tile, wood, and sheet vinyl were included in these studies. The results clearly indicated that carpet had the advantage because of its construction. Carpet's textile surface holds dirt and dust particles until they are vacuumed away. Hard-surface flooring cannot hold dust and must be swept or wet-mopped often. Wet spots must be handled immediately to prevent hazardous situations. Although carpet needs to be vacuumed according to the amount of traffic, vacuuming usually takes less time and labor, and provides a cleaner environment.

In addition to a regular vacuuming program, it is vital that deep cleaning be done periodically. Extraction cleaning is recommended twice a year. If an office or work area has hard-surface flooring, periodic stripping and buffing is required to restore the surface finish. This is a labor-intensive and expensive task, plus stripping equipment is also costly to maintain.

Carpet maintenance routines do not require as many chemicals, or as much labor or cost, providing added value while maintaining good indoor air quality.

Step 5: Comparing Replacement Costs

Estimating the costs to remove carpet is not exact because it varies according to region. The installation contractor can provide an estimate for these expenses. Disposal fees to use landfills or recycling programs should also be included in replacement cost analysis.

Step 6: Estimate Years of Use Desired

It is difficult to establish an estimated life span for carpet. Like price, this figure can vary significantly. If carpet is properly selected for the level of traffic it must withstand, properly installed, and effectively maintained, it can last longer than the eleven years, as in our example. Some neglect maintenance, then expect to get twenty years or more use from carpet. The only way to meet this goal is to work closely with a carpet representative to select an appropriate product, and create and perform a regular maintenance routine. The initial cost for a more durable product may be higher, but calculating the life-cycle cost will show the benefit of investing more in the beginning to save money in the long run.





Step 7 : Leverage Information Gained by Use-Life Cost Analysis

Use-life costing can be used to compare the cost of floor covering by type of product or two of the same product. The use-life analysis gives buyers the proof they need to show that a higher initial investment can add years to the expected life span and, in the long run, save money.

A Use-Life Cost Analysis Of Carpet and Vinyl Composition Tile (VCT)

The cost analysis on page 5 covers a 22-year period, the expected usable life of VCT flooring. A true use-life cost analysis includes the purchase cost and cost to maintain the product over the use-life period in the analysis. For example, carpet in schools has a life span range of 8-15 years, with an average of 11 years, meaning a 22-year use-life cost analysis includes initial installation cost and carpet replacement.

A 1990 study by the Building Office Managers Association (BOMA) compared cleaning rates of carpet versus hard-surface floors. As stated in the study, hard-

surface floors required two and a half times more cleaning time than carpet on an annual basis. Cleaning supplies were about seven times more expensive for vinyl floors than for carpeted floors. The charts on pages 5 and 6 compare the use-life costs of carpet and VCT floor coverings in school facilities during the 22-year life span of VCT. The use life costs are expressed in 1999 constant dollars. Upfront purchases and installation costs for VCT are actually less than carpet, but at the end of the 22-year period, carpet proved more cost effective than VCT.

Data source for studies:

Building Office Managers Association
Carpax Associates, Inc., Atlanta-based contract dealers
International Sanitary Supply Association, cleaning rates

Peer review approval:

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Floor Covering Maintenance Program

LIGHT TO MEDIUM TRAFFIC AREAS:

Conference rooms, auditoriums, limited-access areas, break areas, media centers, administrative office areas, rooms used part-time

CARPET

Vacuum every other day
Spot and spill removal as needed
Deep clean twice yearly

HARD SURFACE

Dry mop every other day
Spot and spill removal as needed
Wet mop twice weekly
Spray burnish monthly
Scrub clean twice yearly
Strip/Refinish yearly

HEAVY TRAFFIC AREAS:

Corridors, break areas, offices, wipe-off regions, cafeterias, congested channels, principle passage routes

CARPET

Doormats as needed
Vacuum every day
Spot removal as needed
Deep clean twice yearly

HARD SURFACE

Doormats as needed
Dry mop every day
Spot removal as needed
Wet mop three times weekly
Spray burnish every other week
Scrub clean twice yearly
Strip/Refinish yearly



Floor Covering Installation Cost Comparison

Based on 22 years of service, comparing carpet and vinyl composition tile (VCT).

LIGHT TO MEDIUM TRAFFIC AREAS

Examples: Per Square Foot

CARPET VCT

Materials plus installation at year 0 (start)	\$2.11	\$0.89
Carpet removal cost after 11 years	\$0.22	\$0
Carpet reinstalled (materials plus installation) after 11 years	\$2.53 (20% inflation?)	\$0
Cost of floor covering system for 22 years	\$4.86	\$0.89
Cost of cleaning and maintenance for 22 years	\$12.20	\$23.81
TOTAL LIFE CYCLE COST FOR 22 YEARS	\$17.06	\$24.70 (+31%)

HEAVY TRAFFIC AREAS

Examples: Per Square Foot

CARPET VCT

Materials plus installation at year 0 (start)	\$2.11	\$0.89
Carpet removal cost after 11 years	\$0.22*	\$0
Carpet reinstalled (materials plus installation) after 11 years	\$2.53**	\$0
Cost of floor covering system for 22 years	\$4.86	\$0.89
Cost of cleaning and maintenance for 22 years	\$13.43	\$37.93
TOTAL LIFE CYCLE COST FOR 22 YEARS	\$18.29	\$38.82 (+53%)

* \$0.22 sq. ft. is about \$2.00 per sq. yd. Many contractors install commercial carpet for \$0.40 per sq. ft. or \$3.60 per sq. yd.

** 20% for inflation is figured here. Even at 100% it wouldn't make that much difference in the conclusion drawn from this study.



Floor Covering Maintenance Cost Comparison

Example from a school environment.

LIGHT TO MEDIUM TRAFFIC AREAS

CARPET	Frequency Per School Year	Minutes Per 1000 sq. ft.	School Year Total Minutes per 1000 sq. ft.	Cost per School Year \$ per sq. ft.
Vacuuming	180 (daily)	12	2160	\$0.3521
Spot Removal	72 (2x wk)	12	864	\$0.1408
Rinse Cleaning	2 (Oct, May)	45	90	\$0.0147
Deep Cleaning	3 (Aug, Dec, Mar)	90	270	\$0.0440
Chemical Costs				\$0.0031
TOTAL			3384	\$0.5547
VINYL COMPOSITION TILE	Frequency Per School Year	Minutes Per 1000 sq. ft.	School Year Total Minutes per 1000 sq. ft.	Cost per School Year \$ per sq. ft.
Dust Mopping	180 (daily)	6	1080	\$0.1760
Spot Mopping	180 (daily)	6	1080	\$0.1760
Wet Mopping	108 (3x wk)	30	3240	\$0.5281
Spray Buffing	18 (EO wk)	30	540	\$0.0880
Scrub/Recoat	2 (Dec, Mar)	120	240	\$0.0391
Strip/Finish	1 (Aug)	300	300	\$0.0489
Chemical Costs				\$0.0260
TOTAL			5726	\$1.0821

HEAVY TRAFFIC AREAS

CARPET	Frequency Per School Year	Minutes Per 1000 sq. ft.	School Year Total Minutes per 1000 sq. ft.	Cost per School Year \$ per sq. ft.
Vacuuming	180 (daily)	10	1800	\$0.2934
Spot Removal	180 (daily)	8	1440	\$0.2347
Rinse Cleaning	2 (Oct, May)	60	120	\$0.0196
Deep Cleaning	3 (Aug, Dec, Mar)	120	360	\$0.0587
Chemical Costs				\$0.0040
TOTAL			3720	\$0.6104
VINYL COMPOSITION TILE	Frequency Per School Year	Minutes Per 1000 sq. ft.	School Year Total Minutes per 1000 sq. ft.	Cost per School Year \$ per sq. ft.
Dust Mopping	180 (daily)	8	1440	\$0.2347
Spot Mopping	180 (2x wk +)	8	1440	\$0.2347
Wet Mopping	108 (3x wk)	45	4860	\$0.7922
Spray Buffing	36 (1x wk)	48	1728	\$0.2817
Scrub/Recoat	5 (Sp/Nv/Fb/Ap)	120	600	\$0.0978
Strip/Finish	1 (Jul)	300	300	\$0.0489
Chemical Costs				\$0.0340
TOTAL			10,368	\$1.724

Based on ISSA (International Sanitary Supply Association) cleaning rates schedule: 36 weeks
Labor: \$9.76 per hour

Floor Covering Maintenance Cost Comparison

Excerpt from a school environment

LIGHT TO MEDIUM TRAFFIC AREAS

HEAVY TRAFFIC AREAS



CRI

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