

COATING SYSTEM ECONOMIC CONCEPTS

When choosing a coating system there are five rule-of-thumb concepts that can improve your selection skill from an economic standpoint and eliminate the risk of inefficient specification:

1. Don't be fooled by initial costs – it's important to look beyond the first year when choosing coating systems. Always consider system efficiency based on service life (cost per square foot per year of service) not the initial application cost.
2. Consideration should always be given to optional intermediate coats and higher quality coatings. Slight additional expense in application and material cost can dramatically increase a systems service life.
3. An upgraded surface preparation method can also have a profound effect on service life – easily paying for the added expense in the long run.

4. Be aware of the performance limitations of a coating system. Specify coatings for use in the environments for which they are formulated. Avoid both premature coating failure and specification "over kill."
5. When selecting a coating system make sure your criteria include maintenance costs. Consideration should be given to how long you expect the system to last and to what degree maintenance is feasible or practical.

These economic considerations are graphically illustrated below. We have contrasted and summarized key concepts for your convenience.

SYSTEM/ENVIRONMENT	TYPICAL LIFE EXPECTANCY (YEARS OF SERVICE)	INITIAL COST (PER SQ. FT.) FOR:				SYSTEM EFFICIENCY (\$ PER SQ. FT. PER YEAR OF SERVICE)
		SURFACE PREPARATION	+ APPLICATION	+ COATING MATERIAL	= TOTAL	
NORMAL INDUSTRIAL EXPOSURE						
A. 2-Coat Alkyd or Water Reducible System SP-2/3	2	\$.40	\$.28	\$.11	\$.79	\$.40
B. 3-Coat Alkyd or Water Reducible System SP-2/3	4	.40	.42	.16	.98	.25
C. 3-Coat Alkyd or Water Reducible System SP-6	7	.65	.42	.16	1.23	.18
D. 3-Coat Epoxy System SP-6	10	.65	.54	.23	1.42	.14
E. 3-Coat Urethane System SP-10	12	.90	.54	.29	1.73	.14
MODERATE INDUSTRIAL EXPOSURE						
F. 3-Coat Alkyd or Water Reducible System SP-2/3	2	.40	.42	.16	.98	.49
G. 3-Coat Alkyd or Water Reducible System SP-6	5	.65	.42	.16	1.23	.25
H. 3-Coat Epoxy System SP-6	8	.65	.54	.23	1.42	.18
I. 3-Coat Urethane System SP-10	10	.90	.54	.29	1.73	.17
SEVERE INDUSTRIAL EXPOSURE						
J. 2-Coat Alkyd or Water Reducible System SP-2/3	1	.40	.42	.16	.98	.98
K. 3-Coat Alkyd or Water Reducible System SP-6	3	.65	.42	.16	1.23	.41
L. 3-Coat Epoxy System SP-6	6	.65	.54	.23	1.42	.24
M. 3-Coat Urethane System SP-10	7	.90	.54	.29	1.73	.25

Consider Upgrading Quality Of The Coating System

Using the above data, the only difference between systems A and B is the additional expense to apply the optional intermediate coat of system B. This increases the total job cost per square foot by 24% over A; however, results in double the service life. The system's overall cost efficiency is therefore increased by 38%. This savings is even greater if we include the maintenance cost required of system A in order to achieve service life comparable to B.

Consider Better Surface Preparation

When we compare system C to B the only difference is the additional expense required to upgrade the surface preparation method of C to an SP-6 abrasive blast from the SP-2/3 hand or power tool cleaning. We incur a 26% increase in the total job cost per square foot of system C; however, service life is increased by 3 years and the system efficiency of C is improved by 28%. This again excludes even greater savings realized if we include a maintenance cost of system B in order to offer service life comparable to C.

Consider A High Performance System

Contrasting system D to C illustrates what can be expected of a high performance coating system in a relatively mild industrial environment. Here we have upgraded from an alkyd system (C) to an epoxy system (D). Additional expense is incurred because application costs of two component epoxy coatings are higher as are the materials themselves. Initial cost per square foot is up 15%; however, service life is increased by 3 years and a system cost efficiency improvement of 22% is realized. Although the overall cost per square foot is only slightly reduced the greatest advantage has been the deferring of recoat or maintenance of system C for 3 more years. This concept is illustrated more clearly by contrasting an epoxy system (D) to a urethane system (E) where the cost per square foot per service year are exactly the same.

Specify Coatings For Their Formulated Purpose

To illustrate coating performance one simply needs to look at the anticipated service life of the different systems in the various industrial environments. The most obvious example of specifying a coating outside its formulated purpose is system J – a minimum surface preparation alkyd coating system in a severe industrial environment. Specification of a high performance system, such as M, would offer very good performance at a fraction of the cost of system J, which needs repair after only one year of service.

Costs are based on typical system recommendations using airless spray equipment and conservative life expectancy projections generally accepted by the coatings industry as reasonable. The intent of this data is to convey concepts useful to the professional person charged with corrosion control responsibilities. Costs of surface preparation and application labor will vary regionally and are based upon 1978 data increased by annual inflation rates to represent 1981 costs.