

Roof Asset Management Survey

By RICHARD L. FRICKLAS

At last year's RCI convention, I had the pleasure of conducting a seminar on roof asset management, particularly Life Cycle Costing. During that program, I asked the attendees to fill in a questionnaire on the estimated life expectancy of various roof systems. After all, how can we do a life cycle analysis if we don't know how long a roof will last?

The size of the poll was small, so the standard deviation is fairly large. Readers are encouraged to attend the NIST/NRCA International Symposium on Roofing in September, where Carl Cash of Simpson, Gumpertz and Heger is scheduled to report on a significantly larger roof life survey.

Some of the observations of my RCI poll are:

- ▼ Asphalt-based built-up roofing can be expected to last 12-19 years, with installation over isoboard shortening roof life by 1-3 years compared to higher density insulation.

- ▼ Coal-tar based BUR will last 19-21 years, two years less with glass felts.
- ▼ An asphalt-based BUR in a protected membrane configuration will last 2-7 years longer than a non-protected configuration.
- ▼ EPDM membranes will last 10-15 years with adhesive laps, and 12-15 with taped laps. Taped laps in a PMR would last 19 years, the only estimate of EPDM in excess of 15 years.
- ▼ Weldable membranes also range from 10-15 years.
- ▼ Modified bitumens range from 10-15 years, with an MB in a protected configuration slightly better, at 15.4 years.

On the subject of ponding, the consensus was that when a roof ponds, the life will be shortened by 1-5 years. Only coal tar pitch/gravel has a shorter estimated life reduction, ranging from 0-3 years.

The overwhelming estimate was that a conscientious maintenance program would add 1-5 years to the average life of a roof system.

Summary of Survey Data

System	Ave.	Min. (2 Sigma)	Max.	System	Ave.	Min. (2 Sigma)	Max.
Asphalt and Coal-Tar BUR				EPDM Membranes			
BUR 3 fg/isoboard	12.1	4.9	19.3	EPDM black, 45 mil ballast (adhered laps)	10.4	5.1	15.8
BUR asph. 3fg/gravel	13.5	7.4	19.5	45 mil reinf. mech. (adh. laps)	11.0	4.5	17.5
BUR 4fg/isoboard	15.5	6.3	24.6	60 mil reinf. mech. (adh. laps)	12.0	3.4	20.7
BUR asph 4fg/gravel	18.6	9.75	27.4	45 mil adhered (adh. laps)	12.1	6.2	18.0
BUR CTP glass/gravel	18.9	2.8	35	60 mil ballast (adhered laps)	12.6	5.0	20.2
BUR/PMR	20.2	3.5	37.0	EPDM/PMR (adhered laps)	14.1	1.4	26.8
CTP organic/gravel	21	6.7	35.3	60 mil adhered (adhered laps)	14.8	7.2	22.3
Modified Bitumen				EPDM black, 45 mil ballast (taped laps)			
Glass base, APP mineral cap	10.0	6.3	13.7	45 mil reinf. mech. (taped laps)	14.0	9.6	18.4
Glass base, SBS mineral cap	10.9	5.8	16.0	60 mil reinf. mech. (taped laps)	14.2	8.7	19.6
Glass base, smooth APP, gravel	11.2	4.7	17.6	45 mil adhered (taped laps)	13.2	8.4	18.0
Mod base, APP mineral cap	12.2	3.8	20.7	60 mil ballast (taped laps)	13.7	10.2	17.2
2+ BUR, SBS mineral cap	13.7	5.7	21.8	EPDM/PMR (taped laps)	19.0	9.7	28.3
2+ BUR, SBS smooth, gravel	14.3	6.4	22.2	60 mil adhered (taped laps)	15.0	8.7	21.3
SBS base, SBS mineral cap	14.6	6.0	23.1	Weldables—PVC or Copolymer			
Any MB, PMR configuration	15.4	6.3	24.4		12.5	6.7	18

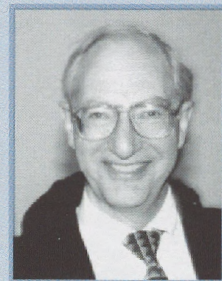
Life Reduction When Ponding Exists

Slope < 1/4"/ft.	0	<1	1-3	>3, <5	>5
BUR glass cap	-	-	8	6	4
BUR, gravel	-	3	10	6	-
BUR smooth, coated	-	-	5	10	5
BUR, CTP, gravel	5	5	8	-	1
EPDM, 45 or 60 mil, ballasted	-	1	5	7	6
EPDM, reinf., mechanical	-	-	5	11	3
EPDM, laps taped, adhered	-	2	10	5	2
EPDM, adhes laps, adhered	-	-	3	11	3
Weldable mem. PVC/copolymer	1	-	13	1	3
CSPE	-	3	7	5	5
SBS mod. cap & base	-	1	10	8	-
BUR & SBS cap	-	1	9	10	-
SBS smooth & aggregate	-	3	10	5	2
Glass base, APP cap	-	-	8	8	2
Mod base APP cap	-	1	7	9	1
APP smooth, aggregate	-	4	5	7	2

Effect of Maintenance on Service Life Increase in Life, Years

Increased Life	0	<1	>1, <3	>3, <5	5+
BUR/asphalt, glass cape	-	1	7	5	4
BUR, asphalt/gravel	-	-	8	6	3
BUR, asphalt, smooth	-	-	6	7	4
BUR, CTP, gravel	-	1	7	4	5
EPDM, 45 or 60 mil, ballasted	1	2	7	7	-
EPDM, reinf., mechanical	-	3	8	6	-
EPDM, laps taped, adhered	-	4	7	5	2
EPDM, adhes laps, adhered	1	2	7	6	1
Weldable mem. PVC/copolymer	-	5	7	5	1
CSPE, mechanical	-	3	6	6	2
SBS mod. Cap & base	-	-	7	7	3
BUR & SBS cap	-	-	4	10	3
SBS smooth & aggregate	-	-	10	5	2
Glass base, APP cap	-	3	6	7	1
Mod base APP cap	-	2	7	8	1
APP smooth, aggregate	-	3	5	8	1
PMR system (any)	6	4	6	1	-

About The Author



Dick Fricklas is an author, journalist and educator. He recently retired as Technical Director of the Roofing Industry Educational Institute (RIEI), a position he held since 1979. Prior to that, he was Director of BURS I. A chemist, Fricklas is co-author of *The Manual of Low Slope Roof Systems*, and is an editor for the *Roofing Specifier* and *RSI* magazines. He holds an honorary membership in RCI.