



Linen Replacement Budgeting Using Replacement Ratios

By
David Gross
President, Gulf Coast Laundry Services

Have you ever wondered why it costs so much to maintain an adequate working inventory of textiles for your hotel? It can be frustrating swimming through a sea of confusing numbers.

The annual replacement cost for room linen and terry items is typically in excess of \$180 per room. Sheets will last considerably longer than washcloths since they are not as likely to be stolen or abused. **All** items, however, are subject to loss, damage, misuse, as well as normal wear and tear.

For many years, the Textile Rental Industry has utilized linen replacement ratios to manage their sizeable inventories of reusable textile items. This technique is very applicable for managing hotel owned textile items.

Once an operating in-service par level is determined and installed, linen replacement ratios can be used to budget and maintain an adequate supply of merchandise at all times. A typical par level is 4-6 times the room set-up amount.

Linen replacement ratios (Percentages) and number of expected launderings can be the most important tools in managing textile replacement costs. This technique has been used in the Textile Rental Industry for the past 40 years.

UNDERSTANDING RATIOS AND WASHINGS:

The two statistics required to make the necessary calculations are the **number of pieces laundered** and the **number of pieces placed into service**. These two statistics allow us to compute the following:

$$\text{Number of Launderings} = \frac{\text{Pieces Laundered}}{\text{New Pieces Inserted}}$$

And

$$\text{*Linen Replacement Ratios (\%)} = \frac{\text{New Pieces Inserted}}{\text{Pieces Laundered X 100}}$$

**Linen Replacement Ratios is defined as:
" New Pieces Inserted per 100 Pieces Laundered"*

A Real Life Example:

A 1000 room hotel uses 2000 bath towels per day at 100% occupancy. During the past year the hotel purchased and inserted 1200 dozen new bath towels to maintain an adequate supply of towels in working inventory.

- What are the number of launderings the hotel experienced *and* the linen replacement ratios for this item?

Number of Launderings =

$$\frac{\text{Pieces Laundered}}{\text{New Pieces Inserted}} = \frac{2000 \times 365}{1200 \times 12} = \frac{730,000}{14,400} = 50.7$$

Linen Replacement Ratio =

$$\frac{\text{New Pieces Inserted}}{\text{Pieces Laundered X 100}} = \frac{14,400}{730,000 \times 100} = 2.0$$

We can now use our historical experience to plan future linen replacement expense.

FORECASTING PIECES LAUNDERED:

To forecast Pieces Laundered we need to use a historical benchmark.

- This benchmark is achieved by using the following formula:

$$\text{Pieces Laundered per Occupied Room} = \frac{\text{Pieces Laundered}}{\text{Total Occupied Rooms}}$$

- Using the preceding formula, our Pieces Laundered per Occupied Room would be computed as follows:

$$\text{Pieces Laundered Per Occupied Room} = \frac{\text{Pieces Laundered}}{\text{Total Occupied Rooms}} \quad \text{or} \quad \frac{2000}{1000} = 2.0$$

- Now we can easily compute a forecast for any level of occupancy and a time period by using the following formula:
 - If our 1000 room hotel has 2.0 pieces laundered per occupied room, how many total pieces will be laundered per year if the forecasted occupancy is 87%?

$$\text{Annual Occupancy:} \quad = 1000 \text{ Rooms} \times 365 \times .87 = 317,550$$

$$\begin{aligned} \text{Total Pieces Laundered:} &= \text{Total Occupied Rooms} \times \text{Pieces Laundered per Room} \\ &= 317,550 \times 2.0 \\ &= 635,100 \end{aligned}$$

A LINEN REPLACEMENT BUDGET–THE FINAL PIECE OF THE PUZZLE

To make our final calculation we need to know the cost of a bath towel. Our 1000 room hotel is using a nice, 100% cotton towel that costs \$4.25 each. Our last task is to forecast the expected Annual Replacements as well as cost based on the previously supplied information.

- Here is a summary of that information:

Total Hotel Rooms	=	1000
Occupied Forecast	=	87%
Total Annual Occupancy	=	317,550
Pieces Laundered per Room	=	2.0
Linen Replacement Ratio	=	2.0
Towel Cost	=	\$4.25

Our replacement budget for the coming year, based on the above data, is computed as follows:

$$\begin{aligned} \text{Total Pieces Laundered} &= \text{Annual Occupancy} \times \text{Pieces Laundered per Occupied Room} \\ &\text{OR} \\ &= 317,550 \times 2.0 &= 635,100 \end{aligned}$$

$$\begin{aligned} \text{Total Pieces Replaced} &= \frac{\text{Pieces Laundered} \times \text{Linen Replacement Ratio}}{100} \\ &\text{OR} \\ &= \frac{635,100 \times 2.0}{100} &= 12,702 \end{aligned}$$

$$\begin{aligned} \text{Total Replacement Cost} &= \text{Total Pieces Replaced} \times \text{Unit Cost} \\ &\text{OR} \\ &= 12,702 \times 4.25 &= \$53,983.50 \end{aligned}$$

$$\begin{aligned} \text{Replacement Cost Per Room} &= \frac{\text{Total Replacement Cost}}{\text{Total Annual Occupancy}} \\ &\text{OR} \\ &= \frac{53,983.50}{317,550} \end{aligned}$$

$$317,550 \quad = \quad \$0.17$$

PUTTING IT ALL TO WORK FOR YOU!

To assist in putting this exercise in perspective, you can refer to the TRSA Linen Replacement Ratios and Linen Average Servings Summary. These statistics are attached as Appendix 1.

Also included is a spreadsheet (Appendix 2) that utilizes the principles of this exercise to develop a complete Room Linen and Terry Replacement Budget for a 1000 room Hotel.

cloths were losing market share. This trend seems to be even truer based on this survey's results. There were no responses for blended white tablecloths and the number of pieces served for colored, blended tablecloths was the same—representing less than one-third of

one percent of the total number of tablecloths used.

In addition, there was a large reduction in the number of colored, blended napkins, as well as white, 100% cotton napkins used in 1999, with a corresponding large increase in

the number of white, 100% polyester napkins. This seems to indicate a trend toward greater use of 100% polyester napkins, likely due to spun polyester. The change to white vs. colored napkins may be due to increased finer dining because of the good economy.

Exhibit 2: 1999 Linen Textile Life Survey Results

Type of Textile Item	Total No. Plants Represented	A Number of Pieces Served (Total)	B Number Placed in Service (Total)	C Weighted Average Expected Servings	D Linen Life Ratio (100/C)
APRONS					
Aprons - Bar/Waist	67	1,715,437	85,299	22.89	4.37
Aprons - Bib (White only)					
Blend	63	17,048,485	1,102,594	20.52	4.87
100% Polyester	64	35,272,298	1,027,120	40.59	2.46
Aprons - Bib (Colors only)					
Blend	18	248,488	52,437	50.03	2.00
100% Polyester	22	1,275,717	33,148	33.67	2.97
TABLE LINEN					
Napkins (White only)					
100% Cotton	65	251,911,312	11,252,210	30.19	3.31
Blend	0	NR	NR	NR	NR
100% Polyester	66	396,561,670	8,645,040	48.11	2.08
Napkins (Colors only)					
100% Cotton	23	22,636,100	285,976	89.10	1.12
Blend	14	1,236,895	129,179	8.38	11.93
100% Polyester	26	25,333,507	699,526	35.40	2.82
Tablecloths (White only)					
100% Cotton	64	9,249,205	289,426	38.80	2.58
Blend	0	NR	NR	NR	NR
100% Polyester	67	24,772,882	623,258	47.51	2.10
Tablecloths (Colors only)					
100% Cotton	23	1,411,189	20,489	59.26	1.69
Blend	14	21,118	1,137	18.57	5.39
100% Polyester	26	4,635,277	91,873	33.87	2.95
TOWELS					
Bar Mops	68	161,171,700	16,497,597	7.89	12.67
Kitchen Towels	69	31,242,098	2,572,088	14.67	6.82
Continuous Towels					
White	50	374,947	5,553	65.74	1.52
Blue	8	168,263	1,638	63.39	1.58
LINEN SUPPLY GARMENTS					
Coats (Long, 3/4 or Longer)	61	346,741	4,237	124.89	0.80
Coats (Short, Less Than 3/4)	17	122,985	1,784	65.50	1.53
Dresses, Smocks, And Gowns	59	244,157	6,430	139.49	0.72
KITCHEN GARMENTS					
Shirts (Kitchen)	65	1,676,060	71,969	25.03	4.00
Pants/Trousers (White)	48	747,315	23,015	54.47	1.84
Pants/Trousers (Checkered)	8	673,882	27,979	36.90	2.71
Chef Coats	65	2,211,406	79,449	30.12	3.32
GENERAL LINENS					
Sheets					
Single/Double	65	19,658,200	682,936	34.76	2.88
Queen/King	23	8,451,614	155,645	57.68	1.73
Pillow Cases (All)	65	72,734,784	1,930,995	42.59	2.35
Bath Towels					
40 in.	58	37,841,715	1,263,526	42.55	2.35
44 in.	62	38,037,933	1,938,112	18.15	5.51
48 in. or over	64	31,021,985	1,416,714	21.98	4.55
Washcloths					
Regular	60	158,858,626	15,227,204	13.26	7.54
Premium/Plush	0	NR	NR	NR	NR
Bath Mats (All)	58	7,063,795	235,105	31.79	3.15
Hand Towels	9	20,935,408	1,561,974	100.46	1.00

NR: No Response

All Seasons Hotel and Casino						12/1/99			
1999 Room Linen and Terry Replacement Budget									
ANNUAL OCCUPIED ROOMS		1,079,483							
Allocated King Rooms		600,193							
Allocated Queen Rooms		479,290							
						Total	1999		
				REPL.		BEFORE		PURCH.	Total
	USAGE PER	TOTAL	REPL.	BUDGET	Cost/	Adjustment	Adjustment	QUANTITY	Adjusted
	ROOM / DAY	USAGE	RATIO	(DOZENS)	Dozen	\$	+/-	(DOZENS)	COST
SHEET,KING	2.02	1,212,389	0.80	808	\$ 109.69	\$88,658		800	\$87,752
SHEET,QUEEN	3.47	1,663,138	0.80	1109	\$ 86.66	\$96,085		1,100	\$95,326
PILLOWSLIP	3.8	4,102,035	1.00	3,418	\$ 15.78	\$53,942		3,400	\$53,652
BATH TOWEL	2.19	2,364,068	2.00	3,940	\$ 57.95	\$228,330	\$ 91,000	5,450	\$315,828
HAND TOWEL	2.33	2,515,195	2.25	4,716	\$ 18.27	\$86,161		4,400	\$80,388
WASHCLOTH	2.53	2,731,092	2.70	6,145	\$ 7.25	\$44,551		6,150	\$44,588
BATH SHEETS	0.07	74,785	0.40	300	\$ 75.00	\$22,500		300	\$22,500
BATH RUG	0.85	917,561	1.00	765	\$ 57.95	\$44,311		575	\$33,321
						\$664,537			\$733,354